

2022
EXAMINATION

10
YEARS
SOLVED
PAPERS

ICSE CLASS X

2022
EXAMINATION

HINDI
ENGLISH (PAPER-I)
ENGLISH (PAPER-II)
HISTORY & CIVICS (PAPER-I)
GEOGRAPHY (PAPER-II)
MATHEMATICS
PHYSICS
CHEMISTRY
BIOLOGY
COMPUTER APPLICATIONS
PHYSICAL EDUCATION
ECONOMICS
ECONOMIC APPLICATIONS
COMMERCIAL STUDIES
COMMERCIAL APPLICATIONS
HOME SCIENCE
ENVIRONMENTAL SCIENCE

10
YEARS

SOLVED
PAPERS

ICSE CLASS X



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PREFACE

- » This volume is a compilation of solved board question papers of past ten years for the students of ICSE class Xth.
- » This volume will help students to develop deep insight into the subject and prepare them to attempt questions from various perspectives. Students will also get acquainted with the distribution of marks and will benefit from advanced knowledge of the type and style of questions asked.
- » The publishers have endeavoured to put together a team of experienced teachers who have taken great care to provide the best possible answers to the questions, in an easy to understand language. It is hoped that this book will help the students to gain confidence and help them clear their exams with flying colours.



FINDING THE RIGHT BIN FOR MASKS?



Masks are a powerful shield against virus. The purpose behind wearing is to stop the spread of saliva and nasal discharge from infecting the other person.



Global use of disposable face masks and gloves is estimated to have been 100 billion pieces every month.



Masks are made up of a synthetic material called, TNT which takes more than 400 years to decompose.



Also masks come in a myriad of shades. The first step towards its healthy disposal is to choose which one to wear at the first place.



For casual use, choose tight cloth masks which can be reused over and over again. However, wearing it in vicinity of an infected person can be a wrong choice.



When visiting hospitals and other contaminated zones, choose loose fitting surgical masks which blocks droplets and splashes of saliva. However, they are ineffective against very small particles that come off sneezing and coughing in close vicinity.



N95 Masks are not for routine use and must be spared for medical experts who are in direct contact with the patient.



When it comes to disposing a mask, the very first step is to wash your hands before removing it from your face.



Wash your hands for atleast 20 seconds, using either an alcohol based sanitizer (having 60% alcohol) or using soap and water.



Remove your mask either using the mask strings or downside up. Don't touch the center of mask.



If you are wearing a cloth mask, put it separately into wash without mixing it with other clothes.



In case of a surgical mask, fold it inwards such that the droplets are not exposed to the air. Make it into a roll and wrap it up in two polythene bags or tissue bag, one inside the other.



Prefer cloth masks for casual use and avoid one time used masks.

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STUDY LOG

TOPICS I'VE MASTERED

TOPICS I'VE TO WORK ON

[illegible]

PRACTICE STRATEGY



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TIPS

1. Divide lengthy topics into smaller chunks and work on understanding one sub-topic at a time.
2. At the end of each study session, make short notes for quick revision.
3. Revisit previously learnt topics regularly from self-made notes.
4. Try to understand the topic than just mugging it up. It will stay in your memory for longer.

YOGA, MEDITATION AND MINDFULNESS

Yoga has ailing nature and as a result, it brings numerous benefits to life. It helps us grow into a delightful personality. Yoga is essential for Teenagers as they come across many hormonal and physical changes in their mind & body during this time. These subsequent changes need powerful physical exercises and intellectual moral inputs to ensure healthy growth.

- **Tadasana** : Many times while studying we forget to sit upright by leaning forward or backward. This can cause serious issues like neck or back strains. Tadasana will help you improve your body posture by strengthening the knees & thighs, helps by increasing height, and regulates the digestive, nervous, and respiratory systems.

- **Uttanasana** : Stress is something everyone has to encounter during their school days. There are an uncountable amount of worries that one confronts during this time period. Uttanasana helps the students by calming their minds and by relieving their anxiety and stress. It relieves headaches, cures insomnia, improves digestion, and activates the kidneys.

- **Adho Mukha Savasana**: Working mentally and physically our bodies sometimes crave rejuvenation and energy. Just like our brain, our body also needs to be re-charged and re-energized to work effectively. Adho Mukha Svanasana energizes and rejuvenates the body by relieving mild depression and cures back pain and fatigue. This pose strengthens the bones and also increases lung capacity by strengthening the chest muscles.



Meditation : There are three types of meditation practices that can prove to be useful in your student's life. So, let's find out which one works best for you.

- **Focused Meditation** : This meditation helps you increase focus by paying all your attention to a point, a flickering flame, or your breaths. As its name suggests focussed meditation helps you improve your focus and learning.

- **Mindfulness Meditation** : Do you like to practice alone? Or don't have an access to a teacher. In this practice You simply allow your mind to flow with the environment around you. This exercise helps you in becoming keenly aware of the sights, smells, and sounds around you. Hence making you more attentive, positive, and full of life.

- **Movement Meditation** : Are you action-oriented? Or have trouble sitting at a place? If yes, movement meditation can prove to be very useful as it helps you to focus on yourself and your body. You move your body in simple exercising postures by focusing on your breath and by stretching your muscles. Which distracts you from external objects or sounds.



Lastly, we need to know that Great things come to those who know "Who they are and What They Want". The courage to take the path less traveled comes from within and so, meditation and mindfulness together prepare you into a great warrior in the field of life.

So, Work hard and let your results hustle. Good luck.

QUESTIONS

(Three Hours)

Answer to this paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

The time given at the head of this paper is the time allowed for writing the answers.

The paper comprises of two Sections : Section A and Section B.

Attempt **all** the questions from Section A.

Attempt four questions from Section B, answering at least one question each from two books you have studied and **any two** other questions from the same books you have compulsorily chosen.

The intended marks for questions or parts of questions are given in brackets [].

SECTION 'A' (40 Marks)

Attempt **all** questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिंदी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- जीवन में खेलकूद मनोरंजन प्रदान करने के साथ-साथ सुख समृद्धि भी देते हैं। विद्यार्थी जीवन में इसकी उपयोगिता बहुत अधिक है। अपने किसी प्रिय खेल का वर्णन करें तथा यह खेल भविष्य में आपको कैसे लाभान्वित कर सकता है, एक निबन्ध में अपनी भविष्य की योजनाएँ भी बताइए
- सादा जीवन उच्च विचार ही मनुष्य के जीवन को अनुकरणीय और महान बनाते हैं। किसी महान व्यक्ति के अच्छे गुणों का वर्णन कीजिए जिन्हें आप अपने जीवन में सबसे अच्छा मानते हैं, वह आपके गुरु, मातापिता, या कोई महान व्यक्ति हो सकता है।
- 'स्वच्छता अभियान में सरकारी तंत्र की अपेक्षा नागरिकों की जागरूकता अधिक प्रभावपूर्ण मानी जाती है' जनता के सहयोग से ही देश स्वच्छ सुन्दर बन सकता है, आप इस कथन से कहाँ तक सहमत हैं? स्पष्ट करें।
- एक ऐसी मौलिक कहानी लिखो, जिसके अंत में आपके विचार से यह स्पष्ट हो कि बिना विचार जो करे सो पाछे पछताए।'
- नीचे दिए गए चित्र को ध्यान से देखिए और चित्र को आधार बनाकर उसका परिचय देते हुए कोई लेख, घटना अथवा कहानी लिखिए, जिसका सीधा व स्पष्ट संबंध, चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below : [7]

निम्नलिखित में से किसी एक विषय पर हिंदी में लगभग 120 शब्दों में पत्र लिखिए:

- “आप अपने परिवार के साथ किसी सुन्दर शहर की यात्रा करके आए हैं आपने वहाँ क्या-क्या देखा? वह शहर इतना प्रसिद्ध क्यों है? अपने मित्र को पत्र लिखकर वर्णन करें।”
- आपके क्षेत्र में मलेरिया तथा डेंगू का प्रकोप बढ़ गया है। इसकी रोकथाम के लिए नगर-निगम के अध्यक्ष को एक पत्र लिखिए।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे गए प्रश्नों के उत्तर हिंदी में लिखिए। उत्तर यथासंभव आपके अपने शब्दों में होने चाहिए :

जापान के विरुद्ध दूसरे महायुद्ध में अमेरिका ने अणुबम का प्रयोग किया। सन् 1945 की गर्मियों में जापान खंडहरों का देश बन गया। लाखों आदमी मर गए थे। चालीस प्रतिशत नगर नष्ट हो गए थे। शहर की आबादी आधी रह गई थी। भूखा जापान-चिथड़ों में लिपटी जनता दीन-हीन, स्तब्ध, हैरान और क्षत-विक्षत हो गई थी। जापान में न कोयला होता है, न लोहा, न तेल और न ही यूरैनियम। बस थोड़ी सी कृषि योग्य भूमि। इस पराजय, दुःख और विनाश के बावजूद भी जापान फिर खड़ा हो गया। यह दुनिया का सबसे ज्यादा विकसित और औद्योगिक राष्ट्र बन गया। यह चमत्कार कैसे हुआ? जापान की समृद्धि और प्रगति के लिए संभवतः राष्ट्रीय गुणों को टटोलना होगा, जो कि वहाँ की जनता की स्वभाविक खूबियों और चरित्र से मिलता है।

जापान और पराजय के पश्चात् एक अमेरिकी व्यापारिक संस्था ने अपनी शाखा जापान में खोली। उसने शाखा में सभी कर्मचारी जापानी रखे। अमेरिकी नियम के अनुसार जापान में सप्ताह में पाँच दिन काम करने का निश्चय किया गया। दो दिन शनिवार और रविवार की छुट्टी रखी गई। उसने सोचा था कि उसकी उदारता का जापानी कर्मचारी और कारीगर स्वागत करेंगे लेकिन यह देखकर

संस्था के व्यवस्थापक को आश्चर्य हुआ कि जापानी कर्मचारी इस व्यवस्था का सामूहिक विरोध कर रहे थे। उसने कर्मचारियों को बुलाया और उसका कारण पूछा।

जापानी कर्मचारी एक आवाज में बोले,—“हमें कष्ट है। हम दो दिन खाली नहीं रहना चाहते। हमारे लिए सप्ताह में सिर्फ एक दिन का ही अवकाश काफी है। ज्यादा आराम से हम प्रसन्न नहीं होंगे। इससे हम आलसी बन जाएंगे, मेहनत के काम में हमारा दिल नहीं लगेगा, हमारा स्वास्थ्य गिरेगा। हमारा राष्ट्रीय चरित्र गिरेगा। अवकाश की वजह से हम व्यर्थ ही घूमेंगे-फिरेंगे, हम फिजूलखर्च बनेंगे। जो छुट्टी हमारी सेहत बिगाड़े तथा आदत खराब करें, आर्थिक स्थिति खराब करें, हमें ऐसा अवकाश नहीं चाहिए।”

अमेरिकी व्यवस्थापक ने अपनी टोपी सिर से नीचे उतारी। उसने जापानी कारीगरों का अभिवादन करते हुए कहा —“आप जापानी भाइयों की समृद्धि और सफलता का रहस्य आपका परिश्रम और लगन है। आप कभी भी बीमार तथा गरीब नहीं रह सकते।

- जापान में विनाशकारी दुर्घटना कब और कैसे हुई? उसका क्या परिणाम हुआ? [2]
- उस देश के पास अपने प्राकृतिक संसाधन क्या हैं? वह पुनः विकसित और समृद्ध राष्ट्र कैसे बना? [2]
- व्यापार की दृष्टि से जापान में कौन आया? उसके आश्चर्य-चकित होने का क्या कारण था? [2]
- जापानी कर्मचारी उस व्यापारिक संस्था का विरोध क्यों कर रहे थे? उन्होंने व्यवस्थापक से क्या कहा? [2]
- व्यवस्थापक पर कर्मचारियों की बात का क्या प्रभाव पड़ा? उसने उनसे क्या कहा? [2]

Question 4.

Answer the following according to the instructions given :

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विलोम लिखिए— [1]
सेवक, बुद्धिमान, न्याय, स्वदेश।
- निम्नलिखित शब्दों में से किसी एक शब्द के दो पर्यायवाची शब्द लिखिए— [1]
कपड़ा, भाग्य, सुगन्ध।
- निम्नलिखित शब्दों में किन्हीं दो शब्दों से विशेषण बनाइए— [1]
भारत, आदर, पीड़ा, डर।
- निम्नलिखित शब्दों में से किन्हीं दो शब्दों के शुद्ध रूप लिखिए— [1]
राष्ट्रस, क्योकी, आदरनिय, कार्यकर्म।
- निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए— [1]
दाँत पीसना, घुटने टेकना, जमीन ताकना।
- कोष्ठक में दिए गए वाक्यों में निर्देशानुसार परिवर्तन कीजिए— [1]
(a) रमेश ईश्वर में बहुत विश्वास रखता है। [1]
(रेखांकित शब्दों के लिए एक शब्द का प्रयोग करके वाक्य पुनः लिखिए।)
- जज ने अपराधी को सजा सुनाई। [1]
(‘द्वारा’ शब्द का प्रयोग करके वाक्य पुनः लिखिए।)

- छात्र यात्रा पर जा रहे हैं। [1]

(भविष्यकाल में बदलिए)

SECTION 'B' (40 Marks)

Questions from only **two** of the following textbooks are to be answered.

Attempt **four** questions from this section.

You must answer at least **one** question from each of the **two** books, you have studied and any **two** other questions from the same books that you have chosen.

साहित्य सागर—संक्षिप्त कहानियाँ (Sahitya Sagar—Short Stories)

Question 5.

Read the extract given below and answer in **Hindi** the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

एक दुखिया स्त्री तुमको अपनी सहायता के लिए बुला रही है। जाओ, उसकी सहायता करके लौट आओ। तुम्हारा सामान यहीं, रहेगा। तुमको अभी यहीं रहना होगा। समझे! अभी तुमको मेरी संरक्षता की आवश्यकता है। उठो, नहा-धो लो। जो ट्रेन मिले, उससे पटना जाकर ब्रजकिशोर की चालाकियों से मनोरमा की रक्षा करो और फिर मेरे यहाँ चले आना। यह सब तुम्हारा भ्रम था। संदेह था।

[‘संदेह’ —जयशंकर प्रसाद]

(‘Sandeheh’—Jaishankar Prasad)

- प्रस्तुत कथन के वक्ता और श्रोता कौन हैं? उनका परिचय दीजिए। [2]
- वक्ता ने यह कथन कब और क्यों कहा? [2]
- मनोरमा कौन थी? उसे रक्षा की आवश्यकता क्यों थी? उसने किस सहायता के लिए बुलाया। [3]
- ‘संदेह’ का क्या अर्थ है? इस कहानी का नाम ‘संदेह’ क्यों रखा गया है? समझाकर लिखिए। इस कहानी में कौन-कौन किस-किस पर कैसे संदेह करता है? [3]

Question 6.

Read the extract given below and answer in **Hindi** the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

रमजान ने ठंडी साँस भरी। उसने रसीला को ठहरने का संकेत किया और आप कोठरी में चला गया। थोड़ी देर बाद उसने कुछ रूपये रसीला की हथेली पर रख दिए। रसीला के मुँह से एक शब्द भी न निकला। सोचने लगा “बाबू साहब की मैंने इतनी सेवा की पर दुख में उन्होंने साथ न दिया। रमजान को देखो गरीब है, परंतु आदमी नहीं देवता है। ईश्वर उसका भला करें।”

[‘बात अठन्नी की’—सुदर्शन]

(‘Baat Atthanni Ki’—Sudarshan)

- रमजान कौन है? उसका परिचय दीजिए। [2]
- रसीला और रमजान किस-किस के यहाँ काम करते थे? उन दोनों में क्या समानता थी? [2]

(iii) रसीला ने रमजान को देवता क्यों कहा है? समझाकर लिखिए। [3]

(iv) कहानी के शीर्षक की सार्थकता पर प्रकाश डालिए। [3]

Question 7.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

उनका 'हृदय' परिवर्तन हो गया है। वे आज सात दिनों से घास खा रहे हैं। रात-दिन भगवान के भजन और परोपकार में लगे रहते हैं। उन्होंने अपना जीवन जीव-मात्र की सेवा में अर्पित कर दिया है। अब वे किसी का दिल नहीं दुखाते। किसी का रोम तक नहीं छूते।

['भेड़ें और भेड़िए'—हरिशंकर परसाई]

('Bheden Aur Bhediyeen'—Harishankar Parsai)

(i) प्रस्तुत कथन किसने, किससे और क्यों कहा? स्पष्ट कीजिए। [2]

(ii) वक्ता ने किसके 'हृदय परिवर्तन' की बात कही? उसने उसके बारे में क्या-क्या कहा? [2]

(iii) वक्ता का चरित्र-चित्रण कीजिए। वह चुनावी सभा में किसे जिताना चाहता था और कैसे? [3]

(iv) चुनाव का क्या परिणाम हुआ? इस कहानी के माध्यम से लेखक क्या स्पष्ट करना चाहते हैं? चुनाव जीतने वाले ने सबसे पहला क्या नियम बनाया और इस नियम से किसका अधिक लाभ हुआ? [3]

साहित्य सागर—पद्य

(Sahitya Sagar—Poems)

Question 8.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

जाके प्रिय न राम वैदेही।

तजिए ताहि कोटि बैरी सम जदपि परम सनेही।।

तज्यो पिता प्रह्लाद, विभीषण बन्धु, भरत महतारी।

बलि गुरु तज्यो, कन्त ब्रज बनितहि, भए मुद मंगलकारी।।

नाते नेम राम के मनियत, सुहृद, सुसेव्य जहाँ लौं।

अंजन कहा आँख जेहि फूटै, बहु तक कहौं कहाँ लौं।।

['विनय के पद'—तुलसीदास]

('Vinay Ke Pad'—Tulsidas)

(i) 'तजिए ताहि कोटि बैरी सम' से कवि क्या कहना चाहता है? स्पष्ट कीजिए। [2]

(ii) राम की भक्ति में किन-किन लोगों ने किनका त्याग किया है? [2]

(iii) 'अंजन कहा आँख जेहि फूटै, बहु तक कहौं कहाँ लौं।' पंक्ति की व्याख्या कीजिए। [3]

(iv) कवि तुलसी के इष्टप्रभु का नाम बताइए। उनकी भाषा और भक्तिभावना का परिचय दीजिए। [3]

Question 9.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

उसे भी आती होगी याद?

उसे हाँ आती होगी याद।

नहीं तो रूठूँगी मैं आज

सुनाऊँगी उसको फरियाद।।

कलेजा माँ का, मैं संतान,

करेगी दोषों पर अभिमान।

मातृ वेदी पर हुई पुकार,

चढ़ा दो मुझको, हे भगवान

['मातृ मंदिर की ओर'—सुभद्राकुमारी चौहान]

['Matri Mandir Ki Or'—Subhadra Kumari Chauhan]

(i) कवयित्री किससे और क्या फरियाद करना चाहती है? [2]

(ii) 'माँ का कलेजा' किस प्रकार का होता है? वह अपनी संतान के साथ किस प्रकार का व्यवहार करती है? [2]

(iii) 'मातृ-वेदी पर हुई पुकार' इस पंक्ति का आशय स्पष्ट करते हुए लिखिए कि कवयित्री क्या कहना चाहती है? [3]

(iv) 'मातृ मंदिर की ओर' कविता से क्या प्रेरणा मिलती है? अपने शब्दों में लिखिए। [3]

Question 10.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

पाहन पूजे हरि मिले, तो मैं पूजूँ पहार।

ताते ये चाकी भली, पीस खाय संसार।।

सात समंद की मसि करौं, लेखनि सब बनराय।

सब धरती कागद करौं, हरि गुन लिखा न जाय।।

['साखी'—कबीरदास]

('Saakhi'—Kabirdas)

(i) कबीरदास जी ने पहाड़ पूजने की बात क्यों कही है? इस दोहे के माध्यम से वे हमें क्या सन्देश देना चाहते हैं? मूर्ति पूजा के बारे में उनके क्या विचार थे? [2]

(ii) उन्होंने चक्की की तुलना किससे की है? वे उसे अच्छा क्यों मानते हैं? [2]

(iii) उन्होंने 'स्याही' और 'लेखनी' किसे बनाने की बात कही है? वे किस पर हरि कथा लिखना चाहते हैं? [3]

(iv) 'हरि गुन लिखा न जाए'—इस कथन से उनका क्या आशय है? समझाकर लिखिए। संत कबीर की भक्ति भावना की विशेषताएँ बताइए और वह कैसे भगवान की पूजा करना चाहते थे? [3]

नया रास्ता (सुष्मा अग्रवाल)
(Naya Raasta—Sushma Agarwal)

Question 11.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

मेहमानों का शानदार स्वागत किया गया। मीनू को देखने के लिए अमित, उसके पिता मायारामजी, माताजी व छोटी बहन मधु आये थे। उनके आतिथ्य में किसी प्रकार की कमी नहीं छोड़ी गयी थी। परिवार के हर सदस्य के हृदय में नया जोश व उमंग था, मानो उनके घर कोई देवता आ गये हो।

- (i) मेहमान कौन हैं? वे कहाँ और क्यों आए हैं? [2]
(ii) किसके, हृदय में जोश और उमंग था? क्यों? [2]
(iii) मेहमानों के स्वागत के लिए क्या-क्या तैयारियाँ की गई? [3]
(iv) अमित और मीनू के बीच हुई बातचीत को संक्षेप में लिखिए। [3]

Question 12.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

धनीमल जी व मायाराम जी ने आपस में कुछ बातों की और सब वहाँ से उठकर चल दिए। अमित व सरिता को एकांत में बात करने का अवसर दिया गया। अमित ने सरिता से कुछ प्रश्न किए।

- (i) धनीमल जी और मायाराम जी का परिचय देते हुए बताइए कि उनमें किस विषय पर बातचीत हो रही थी? [2]
(ii) सरिता को देखकर अमित के मन में क्या विचार आए थे? स्पष्ट कीजिए। [2]
(iii) अमित के माता-पिता उसका रिश्ता सरिता के साथ क्यों करना चाहते थे? इस सम्बन्ध में उन्होंने क्या तर्क दिये? [3]
(iv) अमित के चरित्र पर प्रकाश डालिए। [3]

Question 13.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

मीनू आज दुल्हन के रूप में कितनी सुन्दर लग रही थी, मीनू दुल्हन बनी, उसकी डोली सजी और अपने पिया संग ससुराल को चल दी।

- (i) मीनू ने पहले शादी से क्यों मना कर दिया था? [2]
(ii) मीनू अब शादी करने के लिए क्यों तैयार हो गई? [2]
(iii) तब की मीनू और अब की मीनू में क्या अंतर है? [3]
(iv) हमारे समाज में फैली 'दहेज की कुप्रथा' पर एक टिप्पणी लिखिए। [3]

एकांकी संचय
(Ekanki Sanchay)

Question 14.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“मिसरानी कह रही थी” बहू कैसी भी हो, पर अपने प्राण देकर उसने पति को बचा लिया है, अकेली थी, पर किसी के आगे हाथ पसारने नहीं गई।

['संस्कार और भावना'—विष्णु प्रभाकर]

(‘Sanskar Aur Bhavna’—Vishnu Prabhakar)

- (i) 'बहू अकेली थी' ऐसा क्यों कहा गया है? [2]
(ii) 'बहू की किन विशेषताओं ने सास को कुछ सोचने पर विवश कर दिया? [2]
(iii) माँ का चरित्र-चित्रण कीजिए। [3]
(iv) समाज के लिए जातिवाद किस प्रकार अहितकार है? [3]

Question 15.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

आत्मरक्षा का और कोई उपाय न देखकर महाबली सुयोधन द्वैत वन के सरोवर में घुस गए और उसके जल स्तंभ में छिपकर बैठे रहे। पर न जाने कैसे पांडवों को इसकी सूचना मिल गई और वे तत्काल रथ पर चढ़कर वहाँ पहुँच गए।

['महाभारत की एक साँझ'—भारत भूषण अग्रवाल]

(‘Mahabharat Ki Ek Sanjh’—Bharat Bhushan Agarwal)

- (i) वक्ता, श्रोता कौन-कौन हैं? दोनों में ये बातें कहाँ और किस संदर्भ में हो रही हैं? [2]
(ii) द्वैत वन कहाँ स्थित है? पांडव वहाँ क्यों पहुँचे? [2]
(iii) सुयोधन किसे कहा गया है? उसने आत्मरक्षा के लिए क्या उपाय किया? क्या वह सफल हो पाया? स्पष्ट कीजिए। [3]
(iv) महाभारत युद्ध किनके बीच हुआ था? एकांकी के शीर्षक के औचित्य को समझाइए। [3]

Question 16.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

मैं ही क्या, सारे नगर-निवासी यह त्योहार मना रहे हैं, नहीं मना रही हो तो तुम! धाय माँ तुम! पहाड़ बनने से क्या होगा? राजमहल पर बोझ बनकर जाओगी, बोझ! और नदी बनो तो तुम्हारा बहता हुआ बोझ पत्थर भी अपने सिर पर धारण करेंगे, पत्थर भी!

['दीपदान'—डॉ. रामकुमार वर्मा]

(‘Deepdan’—Dr. Ram Kumar Verma)

- (i) वक्ता का संक्षिप्त परिचय दीजिए। [2]
(ii) 'पहाड़' और 'नदी' से वक्ता का क्या तात्पर्य है? वह श्रोता को क्या सुझाव देती है? [2]
(iii) वक्ता के सुझाव पर श्रोता की क्या प्रतिक्रिया होती है? समझाकर उत्तर लिखिए। [3]
(iv) श्रोता का चरित्र किस प्रकार प्रेरणादायक है? एकांकी के आधार पर समझाइए। [3]

ANSWERS

SECTION 'A'

Answer 1.

(i) जीवन में खेलों का महत्त्व

जीवन में खेलकूद मनोरंजन प्रदान करने के साथ-साथ सुख समृद्धि भी देते हैं। विद्यार्थी जीवन में इसकी उपयोगिता बहुत अधिक है। खेल हमारे जीवन में अत्यधिक महत्वपूर्ण हैं। मनोरंजन का उत्तम माध्यम है, खेलकूद। कुछ खेल शारीरिक क्षमता वाले होते हैं, तो कुछ मानसिक, लेकिन सभी खेलों से मनुष्य का भरपूर मनोरंजन होता है। खेलों से शरीर स्वस्थ व सुगठित बनता है।

विद्यार्थी जीवन में खेलकूद की उपयोगिता बहुत अधिक है। खेलकूद छात्रों के सर्वांगीण विकास के लिए, अति आवश्यक हैं। छात्र खेल के मैदान में अनुशासन, संगठन, आज्ञापालन, साहस, आत्मविश्वास, संगठन, आज्ञापालन, साहस, आत्मविश्वास तथा एकाग्रचित्तता जैसे गुणों का अभ्यास और विकास करते हैं। छात्र स्वस्थ रहते हैं और चुस्त व फुर्तीले होते हैं।

मेरा प्रिय खेल हॉकी है। मुझे हॉकी खेल बहुत पसंद है। हॉकी भारत का राष्ट्रीय खेल भी है। इसमें दो टीमों होती हैं। प्रत्येक टीम में ग्यारह खिलाड़ी होते हैं। हॉकी का एक मैच 60 मिनट का होता है जो कि 15-15 मिनट के 4 भागों में खेला जाता है। इस खेल को खेलने के लिए एक गेंद और लकड़ी की छड़ी का इस्तेमाल किया जाता है। हॉकी को पूरे विश्व में खेला जाता है।

मैं स्कूल की हॉकी टीम में भी हूँ। गतवर्ष हॉकी प्रतियोगिता जो क्षेत्रीय स्तर पर हुई थी, उसमें हमारी टीम जीती थी। मैं प्रतिदिन तीन घंटे का अभ्यास करता हूँ। मेरा सपना है कि मैं अपने देश के लिए खेलूँ।

भविष्य में हॉकी खेल से मैं नाम के साथ-साथ खूब पैसा भी कमा सकता हूँ। हॉकी खेल में सर्वश्रेष्ठ प्रदर्शन देकर देश का ही नहीं बल्कि विश्व का सर्वश्रेष्ठ व उत्तम खिलाड़ी बनना चाहता हूँ। इस खेल से मेरी ही नहीं बल्कि मेरे परिवार की आर्थिक स्थिति भी मजबूत व अच्छी होगी। मैं अपने माता-पिता का ख्याल अच्छे से रख पाऊँगा। उन्हें सारी सुख-सुविधाएँ प्रदान करूँगा।

भविष्य में, बच्चों को हॉकी का प्रशिक्षण देने के लिए एक अकादमी भी खोलूँगा। इस अकादमी का मकसद प्रतिभावान खिलाड़ियों को प्रशिक्षण देना और देश को उत्तम खिलाड़ी भेंट करना होगा। मैं विश्व-कप जीतकर पुनः एक बार देश का गौरव बढ़ाऊँ और विश्व-पटल पर देश की शान बढ़ाऊँ यह मेरा उद्देश्य रहेगा।

(ii) सादा जीवन उच्च विचार

‘सादा जीवन उच्च विचार’ ही मनुष्य के जीवन को अनुकरणीय व महान बनाते हैं। लाल बहादुर शास्त्री जी का कथन सादा जीवन उच्च विचार, हर समय, हर काल में महत्वपूर्ण है, क्योंकि यह कथन वास्तविकता में मनुष्य का जीवन सुख व शांतिपूर्ण बना देता है। सादगी भरा रहन-सहन, खान-पान और सरल विनम्र व्यवहार से मनुष्य सबका प्रिय, आदरणीय और महान बन जाता है। यह नीतिवचन मनुष्य को अपनी जरूरतों और इच्छाओं को सीमित करने की सलाह देते हैं।

आज का युग प्रदर्शन व कृत्रिमता का युग बनकर रह गया है। तड़क-भड़क और बाह्य आडम्बर को अधिक महत्व दिया जाने लगा है। स्वार्थ व महत्वकांक्षाओं की अंधी दौड़ में मनुष्य अपनी

पहचान तक भुला चुका है। इसी का दुष्परिणाम पूरे समाज के नैतिक पतन, भ्रष्टाचार एवं आचारहीनता के रूप में हमारे सामने आ रहा है।

हमारे देश को अहिंसा व सत्याग्रह के बल पर आजाद करवाने वाले ‘राष्ट्रपिता महात्मा गांधी’ का जीवन सादगी से परिपूर्ण था। एक लंगोटी और ऊपर से एक चादर वह भी अपने हाथों से काती गई खादी की। उनका आहार भी एकदम सादा था। वे मोटा खाते, मोटा पहनते और बकरी के दूध से संतोष अनुभव करते थे। उनके विचार भी उच्च कोटि के थे। उन्होंने सादा जीवन और उच्च विचारों के कारण ही देश की जनता को जागृत करके, उसे सुगठित बनाकर देश को अंग्रेजों की गुलामी से मुक्त करवाया।

मैं गांधीजी के महान व्यक्तित्व से प्रभावित हूँ। उनका जीवन हमारे लिए एक महान आदर्श है और अनुकरणीय है। कठोरता पर कोमलता से विजय प्राप्त की जा सकती है। इच्छाओं को सीमित कर संतुष्टि का फल प्राप्त किया जा सकता है। दूसरों के दुःख को अपना दुःख मानना व सबकी खुशियों को अपनी खुशी समझने वाला ही सच्चा मानव कहलाने का अधिकारी है। चाहे जो चुनौती आए, सत्य की राह पर चलना और परिस्थितियों से न घबराना ही मेरे जीवन का मूलमंत्र होगा।

मैं भी गांधीजी की तरह ही अपना जीवन सादगीपूर्ण बिताना चाहता हूँ। दिखावे व आडम्बर से दूर रहना चाहता हूँ और अपना जीवन मानव सेवा के लिए समर्पित करना चाहता हूँ।

(iii) स्वच्छता अभियान में जनता की भूमिका

स्वच्छ भारत अभियान भारत के प्रधानमंत्री श्री नरेंद्र मोदी जी ने महात्मा गांधी जी की जयंती पर 2 अक्टूबर 2014 को आरंभ किया था। साफ-सफाई को लेकर भारत की छवि को बदलने के लिए मोदी जी ने देश को एक मुहिम से जोड़ने के लिए जन आंदोलन बनाकर इसकी शुरुआत की। भारत के राष्ट्रपिता महात्मा गांधी का सपना था ‘स्वच्छ-भारत’।

स्वच्छता ही अच्छे स्वास्थ्य का आधार है। स्वच्छता एक ऐसा कार्य नहीं है जो हम किसी के दबाव में आकर करें स्वच्छता तो हमारे जीवन का अभिन्न अंग है। इस अभियान की सफलता तभी संभव है जब हम दिखावे के लिए नहीं बल्कि बल्कि मन से इसमें भाग लें। पहल हमें अपने घर से करनी होगी। हम अगर अपने आस-पास की जगह, गली, सड़क को साफ रखेंगे, कूड़ा-कचरा यथास्थान पर डालेंगे, तो स्वतः ही हमारा गाँव, नगर, शहर और देश स्वच्छ और सुन्दर बन जाएगा।

इस अभियान में शौचालयों का निर्माण, गली मोहल्लों की सफाई और गाँवों की सफाई के प्रति जागरुकता बढ़ाना। इसके अतिरिक्त राजनेता, अभिनेता व उच्च पदाधिकारी भी इस अभियान से जुड़े हुए हैं। आज समाज के हर वर्ग का व्यक्ति इस अभियान में अपना महत्वपूर्ण योगदान दे रहा है। हर देशवासी अगर यह शपथ ले ले कि वह न तो गंदगी फैलाएगा और न दूसरों को फैलाने देगा, तो निश्चित ही ‘स्वच्छ-भारत’ ‘स्वस्थ भारत’ का सपना पूरा हो जाएगा।

आसपास में फैली हुई गंदगी के कारण ही कई जानलेवा बीमारियाँ फैलती हैं। जिनसे बचने का सबसे अच्छा और श्रेष्ठ तरीका है-आस-पास सफाई बनाए रखना। भारत को स्वच्छ बनाने के साथ-साथ पूरी तरह से खुले में शौच मुक्त बनाना है। हर घर में शौचालय का निर्माण होना चाहिए। इसके लिए हमें सरकार व

नगर-निगम के अधिकारियों पर निर्भर नहीं होना चाहिए। इसके लिए प्रत्येक भारतीय को अपनी कर्मठता का परिचय देना होगा। 'स्वच्छता-अभियान' एक राष्ट्रव्यापी अभियान है। आइये सब मिलकर स्वच्छ भारत व स्वस्थ भारत का सपना पूरा करें। बच्चों से लेकर बूढ़ों तक स्वच्छता का पूरा-पूरा ध्यान रखेंगे और दूसरों को भी सफाई रखने की प्रेरणा देंगे।

**“बापू का एक ही सपना
स्वच्छ और सुंदर हो भारत अपना।”**

(iv) “बिना विचारे जो करे”

ईश्वर ने मनुष्य को विलक्षण बुद्धि वाला अद्भुत मस्तिष्क दिया है। अतः उसे अपनी बुद्धि से विचार करके ही कार्य करना चाहिए। कुछ लोग जल्दबाजी में काम को बिगाड़ देते हैं। कितना ही मनुष्य चालाक क्यों न हों कहीं न कहीं गलती हो ही जाती है। बिना सोचे-विचारे कोई कार्य नहीं करना चाहिए, ऐसा करने से काम बिगड़ता है और मन में भी दुःख होता है। ईश्वर ने हमें बुद्धि इसीलिए दी है कि हम हर कार्य को अपनी बुद्धि से सोच समझकर करें।

एक समय की बात है एक गाँव में एक शिकारी रहता था। उसके घर में एक छोटा बच्चा था और एक कुत्ता था जो शिकारी की अनुपस्थिति में उस बच्चे की रक्षा करता था। शाम को शिकारी आकर उस कुत्ते को बहुत प्यार करता था और अपने हाथ से उसे खाना देता था। एक दिन शिकारी अपने बच्चे को कुत्ते की देख-देख में छोड़कर शिकार खेलने के लिए वन में चला गया। इसी बीच एक भेड़िया घर में घुस आया और उस बच्चे को खाने के लिए पालने में से उठा लिया। इतने में कुत्ते ने झपट कर बच्चे को उसके मुँह से छुड़ा लिया। बच्चा रोता हुआ सरक-सरक कर अन्दर के कमरे में चला गया और कुछ देर बाद वहीं सो गया। इधर कुत्ते और भेड़िये की खूब लड़ाई हुई, लेकिन कुत्ते ने उसे मार गिराया। कुत्ता बाहर बैठकर अपने स्वामी की राह देखने लगा। शाम को जैसे ही शिकारी आया तो कुत्ते ने उसका रोज की तरह स्वागत किया लेकिन शिकारी को कुत्ते के मुँह में खून देखकर अचम्भा हुआ। जब उसने पालने को खाली पाया तो उसका पारा चढ़ गया कि आज तो उसके कुत्ते ने उसके बच्चे को खा लिया। उसने आव देखा न ताव बन्दूक उठाकर अपने कुत्ते को गोली मार दी। एक चीत्कार के साथ कुत्ता वहीं ढेर हो गया। घबराहट और क्रोध भरी मुद्रा में वह भीतर के कमरे में घुसा तो मालूम हुआ कि कोने में उसका बच्चा सो रहा है और वहीं थोड़ी दूर पर एक भेड़िया मरा पड़ा है।

अब तो उसे समझने में देर न लगी कि उसके वफादार कुत्ते ने बच्चे की रक्षा करते हुए उस भेड़िए को मार डाला है। उसने बच्चे को गोद में उठाया और अपनी गलती पर रोने लगा। बच्चे को सुरक्षित देखकर उसे अपनी गलती और जल्दबाजी का ज्ञान हुआ। वह कुत्ते के पास पहुँच कर सिर धुन-धुन कर अपनी भूल और जल्दबाजी पर पश्चाताप करने लगा। सच ही कहा गया है—

**“बिना विचारे जो करे, सो पाछे पछताए।
काम बिगाड़े आपनो, जग में होत हँसाय।।”**

(v) चित्र प्रस्ताव

दिए गए चित्र का सीधा संबंध बाढ़ से है। चित्र में चारों ओर पानी ही पानी दिखाई दे रहा है। एक कार पानी में डूबी हुई है। पेड़-पौधे भी गिरे हुए हैं। बिजली का खंभा भी टूट चुका है। बाढ़ से लोगों को बचाने के लिए सहायक दल पहुँच चुका है। नाव में एक

महिला और एक बच्चा बैठा है। बचाव टीम के कुछ सदस्य और अन्य व्यक्ति भी नाव को पकड़कर चल रहे हैं। उनके पीछे कुछ लोग चल रहे हैं। घुटनों से भी ऊपर तक पानी है। बाढ़ का यह दृश्य अत्यंत विनाशकारी लग रहा है और मन को भयभीत कर रहा है तथा प्रभावित लोगों के प्रति करुणा उत्पन्न कर रहा है।

प्रकृति का कल्याणकारी रूप मानव के लिए समृद्धि तथा आनंद का कारण है, तो इसका विनाशकारी रूप अहितकर। कभी-कभी प्रकृति कुपित होकर अपना विनाशकारी रूप भी दिखाती है। वर्षा-ऋतु जीवनदायिनी तो है, पर अतिवृष्टि भयंकर बाढ़ों का कारण भी बन जाती है। बाढ़ का दृश्य अत्यंत विनाशकारी होता है। हमारा घर यमुना नदी से थोड़ी ही दूरी पर है। पिछले दिनों भयंकर वर्षा हुई तथा दो-तीन दिन तक लगातार होती रही जिसके कारण यमुना का जलस्तर बढ़ गया और देखते-ही-देखते उसका पानी खेतों में भर गया। पता चला कि यमुना से निकलने वाली एक नहर, जो सिंचाई के लिए बनाई गई थी उसका बहुत बड़ा भाग टूट गया है तथा उसका जल तेजी से शहर में भर रहा है।

रेडियो तथा टी.वी. पर स्थानीय प्रशासन द्वारा अब लोगों को सुरक्षित स्थानों पर चले जाने संबंधी सूचना प्रसारित की जा रही थी। भयभीत लोग अपना कुछ सामान उठाए, अपने बाल-बच्चों को साथ लिए सुरक्षित स्थानों की ओर दौड़े जा रहे थे। देखते-ही-देखते जलस्तर बहुत बढ़ गया। गरीब लोगों की झोंपड़ियाँ जलमग्न हो गईं। उनका सामान जल में तैरने लगा। उन लोगों के बर्तन, कपड़े आदि पानी पर तैरते दिखायी दे रहे थे।

कुछ लोग जान बचाने के लिए ऊँचे-ऊँचे वृक्षों पर चढ़ गए थे। विद्युत और संचार व्यवस्था भी ठप्प होती जा रही थी। हमारे आस-पास के लोग छतों पर शरण लिए हुए थे। जलस्तर बढ़ता ही जा रहा था। शहर का आधा भाग जलमग्न हो चुका था। तभी सेना की नौकाएँ आती दिखाई दीं। वे अपने साथ खाने-पीने का सामान तथा अन्य जरूरी चीजें लेकर आए थे। बाढ़ की विनाशालीला देर रात्रि तक चलती रही। तब तक अनेक मकान, पेड़-पौधे ढह चुके थे तथा जान-माल की भारी क्षति हो चुकी थी। प्रातःकाल होते-होते बाढ़ का प्रकोप कम होने लगा, पानी का स्तर घटने लगा। तब लोगों ने राहत की साँस ली।

हमारे देश के अनेक राज्यों में हर साल बाढ़ आती है जिससे, जन-धन की भारी क्षति होती है। इस कारण ये राज्य प्रगति की दौड़ में पिछड़े हुए हैं। बाढ़ के कारण किसानों की फसलें खराब हो जाती हैं तथा पशु, धन एवं व्यापार की भी भारी हानि होती है। बाढ़ अपने साथ महामारियाँ ही नहीं, गरीबी और भूख भी साथ लाती है। सरकार को चाहिए कि इन क्षेत्रों में बाढ़ पर नियंत्रण लगाने के लिए ठोस उपाय करे और प्रकृति के कहर से देशवासियों को बचाये।

Answer 2.

(i) परीक्षा भवन

आगरा।

दिनांक : 6.12.20XX

प्रिय मित्र विजय,

सप्रेम नमस्कार।

मैं यहाँ पर कुशलपूर्वक हूँ। आशा करता हूँ कि तुम भी वहाँ कुशलपूर्वक होंगे। जैसा कि तुम जानते हो कि इस बार की छुट्टियों में मैं अपने परिवार के साथ बेंगलूर गया था।

बेंगलूर बड़ा ही सुन्दर शहर है। यहाँ चारों ओर हरियाली ही हरियाली है। कर्नाटक की राजधानी है। इस शहर को 'गार्डन

सिटी ऑफ इंडिया' के रूप में जाना जाता है। सबसे पहले हम 'विधान सौध' देखने गए। यह भवन सचिवालय और राज्य की विधान सभा का कार्य स्थल होने के साथ-साथ ईट और पत्थर से बना एक उत्कृष्ट निर्माण है। उसके बाद हम बेंगलौर-पैलेस और उल्सूर झील देखने गए। मौसम सुहावना था। उल्सूर झील का नजारा बड़ा ही अनुपम था। इसके अलावा हमने लाल बाग की सैर की, बुल टेंपल गए। हम प्रसिद्ध गवीपुरम गुफा मंदिर भी देखने गए। यह शहर रेशम की साड़ियों व चंदन से बनी चीजों के लिए बहुत प्रसिद्ध हैं। यहाँ के सुविख्यात होटल एम.टी.आर. में हमने गरम-गरम इडली और डोसा भी खाए। रात को हम यूबी सिटी भी देखने गए। यह गगनचुंबी इमारत अद्वितीय है।

यह यात्रा मेरे लिए अविस्मरणीय यात्रा थी। खूब मजा आया। तुमने छुट्टियाँ कैसे बितायी, यह जरूर बताना।

तुम्हारा मित्र,
भरत।

(ii) प्रेषक

भरत

03, राजगली

आगरा।

दिनांक : 6.12.20XX

सेवा में,

अध्यक्ष महोदय

आगरा नगर निगम,

आगरा।

विषय: मलेरिया व डेंगू के रोकथाम हेतु पत्र।

महोदय,

इस पत्र के माध्यम से आपका ध्यान शहर के उपनगर गांधीनगर में फैल रहे मलेरिया व डेंगू के बढ़ते प्रकोप और रोकथाम हेतु उपाय करने की ओर आकर्षित करना चाहता हूँ।

मलेरिया व डेंगू संक्रामक रोग हैं, जो बड़ी तेजी से फैलते हैं। बरसात का पानी कई स्थानों पर रूका हुआ है, और इसी कारण मच्छर बहुत अधिक उत्पन्न हो रहे हैं। हमारे क्षेत्र में कई लोग बीमार पड़ चुके हैं। कई लोगों की स्थिति अधिक खराब हो जाने पर उन्हें अस्पताल में भी भर्ती करवाना पड़ा है।

मेरा आपसे सविनय निवेदन है कि आप इन संक्रामक रोगों की रोकथाम के लिए पूरे क्षेत्र में मच्छर मारने की दवा छिड़कवाएँ। दूरदर्शन पर इन बीमारियों के फैलने के कारण, लक्षण व बचने के उपाय आदि की विस्तृत जानकारी बताकर, सबको जागरूक करें। आशा है, आप इन रोगों को फैलने से रोकने के लिए तुरंत उचित कार्यवाही करेंगे।

धन्यवाद।

भवदीय

भरत

Answer 3.

- (i) जापान में विनाशकारी दुर्घटना दूसरे विश्वयुद्ध के समय सन् 1945 में हुई। इस विश्वयुद्ध में जापान के विरुद्ध अमेरिका ने अणुबम का प्रयोग किया। जापान खंडहरों का देश बन गया। लाखों आदमी मर गए थे। चालीस प्रतिशत नगर नष्ट हो गए थे। देश की आबादी आधी रह गई थी। भूखा जापान चिथड़ों में लिपटी जनता दीन-हीन, स्तब्ध, हैरान और क्षत-विक्षत हो गई थी।

- (ii) उस देश के पास अपने प्राकृतिक संसाधन के नाम पर थोड़ी सी कृषि योग्य भूमि है। वह पुनः विकसित और समृद्ध राष्ट्र उसकी जनता की कर्मठता व परिश्रम करने के चारित्रिक विशेषताओं के कारण बना।

- (iii) व्यापार की दृष्टि से जापान में एक अमेरिकी व्यापारिक संस्था ने अपनी शाखा खोली। इस व्यापारिक संस्था ने अपनी शाखा में सभी कर्मचारी जापानी रखे। कम्पनी ने दो दिन शनिवार और रविवार की छुट्टी रखने का निश्चय किया। यह देखकर संस्था के व्यवस्थापक को आश्चर्य हुआ कि जापानी कर्मचारी इस व्यवस्था का सामूहिक विरोध कर रहे थे। वे दो दिन का साप्ताहिक अवकाश नहीं चाहते थे।

- (iv) जापानी कर्मचारी शनिवार और रविवार को दी जाने वाली छुट्टी के कारण व्यापारिक संस्था का विरोध कर रहे थे। उन्होंने व्यवस्थापक से कहा कि वे दो दिन खाली नहीं रहना चाहते। उनके लिए सप्ताह में सिर्फ एक दिन का ही अवकाश काफी था। ज्यादा आराम करने से वे आलसी बन जाएँगे। उनका स्वास्थ्य गिरेगा। उनका राष्ट्रीय चरित्र गिरेगा। अवकाश की वजह से वे व्यर्थ ही घूमेंगे-फिरेंगे और फिजूलखर्ची करेंगे।

- (v) व्यवस्थापक पर कर्मचारियों की बात का गहरा प्रभाव पड़ा। उन्होंने अपनी टोपी सिर से नीचे उतारी और कर्मचारियों का अभिवादन करते हुए कहा कि जापानी भाइयों की समृद्धि और सफलता का रहस्य उनका परिश्रम और लगन है। वे कभी भी बीमार तथा गरीब नहीं रह सकते।

Answer 4.

- | | | | |
|-------------|---------------------------------------|-----------|-------------|
| (i) सेवक | - स्वामी | बुद्धिमान | - बुद्धिहीन |
| न्याय | - अन्याय | स्वदेश | - विदेश |
| (ii) कपड़ा | - वस्त्र, चीर, वसन, परिधान, अंबर, पट। | | |
| भाग्य | - किस्मत, विधि, नियति, होनी। | | |
| सुगन्ध | - महक, खुशबू, सुरभि, सौरभ, सुवास। | | |
| (iii) भारत | - भारतीय | आदर | - आदरणीय |
| पीड़ा | - पीड़ित | डर | - डरावना |
| (iv) राक्षस | - राक्षस | व्योकी | - क्योंकि |
| आदरनिय- | आदरणीय | कार्यकर्म | - कार्यक्रम |

- (v) दाँत पीसना (बहुत क्रोध आना)—परिवार के सामने अपनी बेइज्जती होने के कारण राजेश दाँत पीसकर रह गया।

घुटने टेकना (हार मानना)—भारतीय सेना के आगे शत्रुओं को घुटने टेकने पड़े।

ज़मीन ताकना (लज्जित होना)—चोरी पकड़ी जाने पर अमीना ज़मीन ताक रही थी।

- (vi) (a) रमेश आस्तिक है।
(b) जज द्वारा अपराधी को सजा सुनाई गई।
(c) छात्र यात्रा पर जाएँगे।

SECTION 'B'

Answer 5.

- (i) प्रस्तुत कथन की वक्ता श्यामा और श्रोता रामनिहाल है। वक्ता श्यामा एक आदर्श विधवा नारी है। वह धार्मिक, समझदार व संस्कारी महिला है। रामनिहाल सज्जन, परिश्रमी व चरित्रवान व्यक्ति है।

- (ii) वक्ता श्यामा उपर्युक्त कथन रामनिहाल से तब कहती है जब उसे मनोरमा की स्थिति व पत्र द्वारा रामनिहाल से मदद करने की

प्रार्थना की जानकारी मिलती है। रामनिहाल जब घर छोड़कर जाना चाहता है तब श्यामा उसे रोकती है और मनोरमा की सहायता करने को कहती है।

- (iii) मनोरमा मोहन बाबू की पत्नी है। वह अत्यंत सुन्दर, सुशील तथा धनी महिला है। ब्रजकिशोर के षड्यंत्र से अपने परिवार को बचाने के लिए रामनिहाल से सहायता की प्रार्थना करती है। ब्रजकिशोर एक लालची व्यक्ति है। वह अपने निकट सम्बन्धी मोहन बाबू को अदालत से पागल करार कर उनकी सम्पत्ति का प्रबन्धक बनना चाहता है।
- (iv) संदेह का अर्थ है 'शक करना'। कहानी के पात्रों में हमेशा संदेह की मनःस्थिति बनी रहती है। रामनिहाल का दुखी होना, रोना, श्यामा का चित्र उसके हाथ में होना, मोहन बाबू का मनोरमा पर शक करना आदि के कारण कहानी का नाम 'संदेह' रखा गया है। इस कहानी में मोहन बाबू, मनोरमा व ब्रजकिशोर पर संदेह करता है कि दोनों मिलकर उसके खिलाफ षड्यंत्र रच रहे हैं। रामनिहाल को संदेह है कि मनोरमा उससे प्यार करती है, इसलिए उसे खत लिखती है। रामनिहाल श्यामा से प्यार करता है। इस प्रकार कहानी के सारे पात्र भ्रमित हैं और संदेह में घिरे रहते हैं।

Answer 6.

- (i) रमजान शेख सलीमुद्दीन का चौकीदार व रसीला का परम मित्र था। जब रसीला को पैसों की जरूरत थी, तब रमजान ने ही पैसे देकर रसीला की मदद की। रसीला ईमानदार, कर्तव्यनिष्ठ व दयालु व्यक्ति था।
- (ii) रसीला-इंजीनियर बाबू जगतसिंह के यहाँ काम करता था। रमजान-ज़िला मजिस्ट्रेट शेख सलीमुद्दीन के यहाँ काम करता था। दोनों एक-दूसरे के गहरे मित्र थे दोनों गरीब थे व एक दूसरे का दुख दर्द समझते थे। दोनों अपने-अपने मालिक के प्रति ईमानदार थे।
- (iii) रसीला का परिवार गाँव में रहता था। घर से खत आता है कि उसके बच्चे बीमार हैं। वह मालिक जगतसिंह से पैसे देने की प्रार्थना करता है पर कठोर जगतसिंह साफ मना कर देता है। तब रमजान रुपए देकर रसीला की मदद करता है। समय पर मदद करने पर रसीला रमजान से कहता है कि वह आदमी नहीं देवता है। ईश्वर उसका भला करे।
- (iv) कहानी 'बात अठनी की' का शीर्षक सार्थक व उपयुक्त है। सुदर्शन जी द्वारा लिखित 'बात अठनी की' एक व्यंग्यात्मक कहानी है। इंजीनियर बाबू जगतसिंह के नौकर रसीला ने मात्र आठ आने की हेरा-फेरी की थी। इस हेरा-फेरी के लिए जगतसिंह उसे मारते हैं और रिश्वत देकर पुलिस के हवाले कर देते हैं। माफी माँगने पर भी उसे माफी नहीं मिलती और मजिस्ट्रेट साहब उसे छः महीने की सजा सुना देते हैं। फैसला सुनकर रमजान को बहुत गुस्सा आता है। रिश्वत लेकर अमीर लोग सम्मानित जीवन जीते हैं, और एक निर्धन व्यक्ति को केवल अठनी की हेरा-फेरी के लिए सजा दी जाती है। अतः यह स्पष्ट हो जाता है कि कहानी का शीर्षक सार्थक है।

Answer 7.

- (i) प्रस्तुत कथन बूढ़े सियार ने संत के दर्शन करने को इकट्ठी हुई, सैकड़ों भेड़ों से कहा। भेड़ों ने जब संत के रूप में भेड़िए को देखा तो सभी भेड़ें डर गईं। अपनी जान की रक्षा के लिए भेड़ें इधर-उधर भागने लगीं। भागती हुई भेड़ों को रोकने के लिए और उन्हें

विश्वास दिलाने के लिए बूढ़ा सियार कहता है कि भेड़िया राजा संत हो गया है।

- (ii) बूढ़े सियार ने 'भेड़िए' के 'हृदय परिवर्तन' की बात कही। बूढ़े सियार ने कहा कि भेड़िया राजा संत हो गए हैं। उन्होंने हिंसा बिल्कुल छोड़ दी है। भेड़िए का हृदय परिवर्तन हो गया है। वे आज सात दिनों से घास खा रहे हैं। रात-दिन भगवान के भजन और परोपकार में लगे रहते हैं। उन्होंने अपना जीवन जीव-मात्र की सेवा में अर्पित कर दिया है। अब वे किसी का दिल नहीं दुखाते। भेड़ों से उन्हें विशेष प्रेम है।
- (iii) वक्ता बूढ़ा सियार चापलूसों का प्रतीक है। वह चालाक, मौकापरस्त, स्वार्थी व धूर्त है। ऐसे चापलूस लोग भ्रष्ट नेताओं की चापलूसी करते हैं, अपना स्वार्थ पूरा करते हैं और भोली-भाली जनता को बहला-फुसलाकर भ्रष्ट नेताओं को वोट दिलवाते हैं। वह चुनावी सभा में भेड़िए को जिताना चाहता था। भेड़िए को जितवाने के लिए वह योजना बनाता है। भेड़िए का रूप बदल देता है। उसके मस्तक पर तिलक लगाकर, गले में कंठी पहनाकर और मुँह में घास के तिनके खोँसकर उसे संत बना देता है। जंगल में भेड़िए के प्रचार-प्रसार के लिए तीन सियारों को रंग देता है—'पीला सियार' विद्वान, विचारक, कवि व लेखक का प्रतीक था। 'नीला-सियार' नेता और पत्रकार और 'हरा-सियार' धर्मगुरु का प्रतीक था। रंगे सियार भेड़ों को संबोधित करते हुए अपने भाषण में भेड़िए का खूब प्रचार करते हैं। भेड़ों को विश्वास दिलाते हैं कि भेड़िया ही उनका सच्चा और अच्छा नेता है।
- (iv) पंचायत के चुनाव में भेड़ों के हितों की रक्षा के लिए भेड़िए प्रतिनिधि बनकर गए। भेड़िए चुनाव जीत गए। इस कहानी के माध्यम से लेखक ने धोखेबाज, झूठे, ढोंगी व चालाक राजनेताओं की पोल खोली है। राजनेता अपना स्वार्थ सिद्ध करते हैं तथा भोली-भाली जनता का शोषण करते हैं। चुनाव जीतने वाले भेड़ियों ने सब से पहले यह नियम बनाया कि हर भेड़िये को सवेरे नाश्ते के लिए भेड़ का एक मुलायम बच्चा दिया जाए, दोपहर के भोजन में एक पूरी भेड़ तथा शाम को स्वास्थ्य के ख्याल से कम खाना चाहिए, इसलिए आधी भेड़ दी जाए। इस नियम से सबसे अधिक लाभ भेड़ियों को हुआ।
- (i) कवि तुलसीदास कहते हैं कि जिसे राम-जानकी प्यारे न हों उसे करोड़ों शत्रुओं के समान त्याग देना चाहिए, चाहे वह अपना अत्यंत स्नेही और प्रिय क्यों न हो? इस प्रकार कवि तुलसी ने अपनी अनन्य भक्ति व श्रद्धा प्रभु राम और माँ जानकी (सीता) के प्रति प्रकट की है।
- (ii) राम की भक्ति में प्रह्लाद ने अपने पिता हिरण्यकश्यप को, विभीषण ने अपने भाई रावण को, भरत ने अपनी माता कैकेयी को, राजा बलि ने अपने गुरु शुक्राचार्य को तथा ब्रज में गोपियों ने अपने-अपने पतियों को त्याग दिया था। इसी को तो भक्ति की पराकाष्ठा कहते हैं कि जो भक्ति के मार्ग में अवरोध पैदा करता है, उसे त्याग देना ही भक्त के हित में है।
- (iii) प्रस्तुत पंक्ति के द्वारा कवि तुलसीदास ने अपने आराध्य प्रभु राम के प्रति अपनी अनन्य भक्ति को दर्शाया है। इसी संदर्भ में वे आगे कहते हैं कि जिस अंजन (काजल) को लगाने से आँखें फूट जाएँ, वह अंजन ही किस काम का? कवि कहते हैं कि जिसे प्रभु राम के चरणों में प्रेम भाव हो, वही सब प्रकार से अपना परम हितैषी,

पूजनीय और प्राणों से भी अधिक प्रिय है तथा इसके विपरीत जो राम के प्रति स्नेह व भक्ति न रखता हो, वह सदा के लिए अप्रिय और त्याज्य है।

- (iv) कवि तुलसी के इष्टप्रभु का नाम 'राम' है। उनकी भाषा ब्रज और अवधी थी।

भक्तिभावना—भगवान राम के अनन्य भक्त हैं राम भक्ति शाखा के प्रमुख कवि हैं। इनकी भक्ति में दास्य-भावना है। इन्होंने रामचरितमानस में राम के चरित्र का विस्तृत व आदर्श वर्णन कर उन्हें मर्यादा पुरुषोत्तम बना दिया है।

Answer 9.

- (i) कवयित्री देवी माँ से फरियाद करना चाहती है। कवयित्री का मानना है कि माता को भी उसकी याद अवश्य आती होगी, अन्यथा वह उससे रूठ जाएगी। इसलिए वह मातृ मन्दिर पहुँचकर माता को अपनी फरियाद अवश्य सुनाएगी।
- (ii) 'माँ' का कलेजा कोमल व विशाल होता है। वह अपनी संतान से बहुत प्यार करती है। माता कभी भी संतान के दोषों पर ध्यान नहीं देती। वह संतान के सुख-दुःख में साथ देती है और हृदय से आशीर्वाद देती है कि वह हमेशा प्रगति करे।
- (iii) 'मातृवेदी पर हुई पुकार' पंक्ति का आशय है कि जब भी मातृभूमि पर किसी आक्रमणकारी का आक्रमण होगा, मातृभूमि की रक्षा की पुकार उठेगी, तब कवयित्री स्वयं अपना बलिदान देकर मातृभूमि की रक्षा करेंगी। कवयित्री मातृभूमि की रक्षा हेतु अपना सर्वस्व बलिदान करने के लिए तैयार है।
- (iv) कविता, मातृमन्दिर की ओर, से पाठकों को देशप्रेम की प्रेरणा मिलती है। देशवासियों को मातृभूमि के प्रति त्याग, बलिदान एवं समर्पण की भावना रखने की प्रेरणा मिलती है। हर देशवासी का यह संकल्प हो कि वह भारत माता पर कोई अत्याचार नहीं होने देंगे। जब भी भारत माता की रक्षा करने की बात आएगी, तब हर भारतवासी अपना सर्वस्व न्योछावर करने के लिए तैयार रहेंगे।

Answer 10.

- (i) कबीरदास जी कहते हैं कि अगर पत्थर पूजने से भगवान की प्राप्ति हो जाती है तो वे पहाड़ को ही पूजते। इस दोहे में कबीरदास जी ने हिंदुओं की मूर्ति-पूजा पर व्यंग्य किया है। इस दोहे से वे यह संदेश देना चाहते हैं कि बाहरी आडम्बर व दिखावे से भगवान नहीं मिलते। वे मूर्ति पूजा का विरोध करते हैं। वे इसे अंधविश्वास मानते हैं।
- (ii) कबीरदास ने चक्की की तुलना ईश्वर के साकार रूप (पत्थर की मूर्ति) से की है। वे चक्की के पत्थर को मूर्ति के पत्थर से अधिक अच्छा मानते हैं क्योंकि उससे पिसे आटे से संसार की भूक शान्त होती है।
- (iii) उन्होंने सातों समुद्रों के जल को स्याही और सारे जंगल की लकड़ी को लेखनी बनाने की बात कही है। सम्पूर्ण धरती को कागज बनाकर, उस कागज पर हरि कथा लिखना चाहते हैं।
- (iv) कवि कहते हैं कि यदि सातों समुद्रों के जल को स्याही बना लिया जाय और सारे जंगल की लकड़ी को लेखनी बनाकर, सारी धरती को कागज बना दिया जाए तब भी ईश्वर का गुणगान करना असंभव है। ईश्वर शब्दातीत है। संत कबीर निर्गुण भक्ति शाखा के ज्ञानाश्रयी कवियों में सर्वोपरि हैं। कबीर निर्गुण ब्रह्म के उपासक थे। इसलिए इन्होंने मूर्ति पूजा, कर्मकाण्ड तथा बाहरी आडम्बरों का खुलकर विरोध किया। वे राम रहीम की एकता में विश्वास रखते थे।

Answer 11.

- (i) मेहमान के रूप में मायाराम, उनकी पत्नी, बेटा अमित व छोटी बेटी मधु आए हैं। वे सभी दयाराम के घर उनकी बड़ी बेटी मीनू के विवाह के सिलसिले में उसे देखने आए हैं।
- (ii) दयाराम के परिवार के हर सदस्य के हृदय में जोश और उमंग था। दयाराम की बड़ी बेटी मीनू को देखने मायाराम व उनका परिवार आया हुआ था। बेटी के विवाह के सिलसिले में कई जगह असफल होने के बाद इस बार उन्हें व उनके परिवार को इस बात का विश्वास है कि उनकी बेटी मीनू का रिश्ता मायाराम जी के बेटे अमित के साथ पक्का हो जाएगा। इसलिए दयाराम का परिवार काफी उमंग व जोश में था।
- (iii) मेहमानों के स्वागत के लिए विभिन्न प्रकार की तैयारियाँ की गई थीं। घर की सारी चीजें झाड़ू-पोंछकर यथास्थान लगा दी गई थीं। बैठक को विशेष रूप से सुसज्जित किया गया था। घर में विभिन्न प्रकार के व्यंजन बनाए गए थे। अनेक प्रकार की मिठाइयाँ बाजार से मँगाई गई थीं। इस तरह मेहमानों के स्वागत के लिए शानदार तैयारियाँ की गई थीं।
- (iv) अमित ने मीनू से उसके एम.ए. के परिणाम के बारे में पूछा तो मीनू उसे बताती है कि वह प्रथम श्रेणी में पास हुई है। इस पर अमित ने प्रसन्नता के साथ मीनू की प्रशंसा की। अमित ने मीनू से उसके घरेलू कार्यों की रूचि के संदर्भ में प्रश्न किया। मीनू ने उत्तर दिया कि वह घर के सभी कामों, जैसे सिलाई, बुनाई, कटाई, खाना बनाना, पेंटिंग आदि करने में कुशल है। 'अमित' मीनू से पूछता है कि क्या वह संयुक्त परिवार में उसके माता-पिता व बहन के साथ रहना पसंद करेगी? मीनू इस प्रश्न पर अपनी सहमति प्रदान करती है।

Answer 12.

- (i) धनीमल जी मेरठ के रहने वाले धनी व्यक्तियों में से एक हैं। मायाराम अमित के पिता थे। मायाराम जी धनीमल जी के घर पर उनकी बेटी सरिता को देखने आए हैं। दोनों के बीच सरिता और अमित के विवाह के दहेज के विषय पर बातचीत हो रही थी।
- (ii) सरिता को देखते ही अमित के पैरों तले जमीन खिसक गई। उसने मन ही मन अनुभव किया कि नाक-नक्शे में सरिता से कहीं ज्यादा मीनू ही अच्छी है। नाक-नक्शे में सिर्फ उसकी आँखें ही बड़ी थीं। रंग तो मीनू के सामने कहीं ज्यादा दबा हुआ था।
- (iii) अमित के माता-पिता उसका रिश्ता सरिता के साथ करना चाहते थे क्योंकि वह अमीर घर से थी और दहेज में पाँच लाख रुपये लाने वाली थी। अमित की माँ यह तर्क देती है कि सरिता में कोई बुराई नहीं है। देखने में वह उन्हें अच्छी लगी। भले ही सरिता का रंग थोड़ा-सा दबा हुआ है, पर वह भी शादी के बाद निखर आएगा। रंग से क्या लेना-देना, दुनिया में गौरा-काला दो ही रंग होते हैं, पर शादी तो सबकी होती है।
- (iv) 'अमित' मायाराम जी का पुत्र है। वह संस्कारी, जिम्मेदार, आज्ञाकारी पुत्र था। वह दहेज विरोधी था। मीनू पसंद होने पर भी वह सरिता से शादी करने के लिए तैयार हो जाता है। वह माता-पिता का विरोध नहीं करता। दुर्घटनाग्रस्त होकर अस्पताल में भर्ती होने पर वह मीनू से क्षमा माँगता है। अपने किए पर शर्मिन्दा होता है। अंत में अमित व मीनू का विवाह हो जाता है।

Answer 13.

- (i) मीनू ने पहले शादी से मना कर दिया था क्योंकि रंग साँवला होने के कारण उसे बार-बार लड़के वाले अस्वीकार कर देते हैं। मीनू समाज की कठोरता को समझती है। लड़के वाले लड़की के गुणों को अनदेखा कर बाहरी सुंदरता और धन को प्रमुख समझते हैं।

- (ii) अब मीनू एक प्रतिष्ठित वकील बन गई थी। उसने आत्मविश्वास व लगन से विशेष ख्याति प्राप्त कर ली थी। आज वह समाज में सिर उठाकर जीने के काबिल बन चुकी थी। उसने अपने बचपन के सपने को पूरा कर लिया था। इसलिए मीनू अब शादी करने के लिए तैयार हो गई थी।
- (iii) उपन्यास के आरंभ में मीनू मानसिक व भावनात्मक स्तर पर कमजोर युवती थी। वह अपने आपको दुर्भाग्यशाली मानती है। वह जीवन से निराश हो जाती है। सौंवले रंग-रूप तथा कद-काठी को लेकर कई बार लड़के वाले उससे शादी करने से इन्कार कर देते हैं। वह हीनभावना से ग्रस्त रहती है। तब की मीनू का मन दुःख, निराशा व उदासी से भरा था। उसे आत्मग्लानि होने लगी थी। तब की मीनू और अब की मीनू में जमीन-आसमान का अंतर था। अब वह प्रतिष्ठित वकील बन चुकी थी। अपने आत्मविश्वास व रोबदार व्यक्तित्व के कारण बहुत प्रसिद्ध हो चुकी थी। अब वह आत्मनिर्भर थी। स्वाभिमान की व उदार चरित्र की बेटा को पाकर उसके माँ-बाप भी अपने आप को धन्य महसूस कर रहे थे।
- (iv) दहेज प्रथा एक सामाजिक अभिशाप है। प्राचीन काल में माता-पिता सामान व धन देते थे। किन्तु धीरे-धीरे इस कुप्रथा ने उग्र रूप धारण कर लिया। अब दहेज लड़की के माता-पिता को अपनी इच्छानुसार नहीं वरन् वर पक्ष की इच्छानुसार देना पड़ता है। दहेज के अभाव में युवा पुत्री को कुंवारी बैठी देखकर घर का वातावरण तनावपूर्ण हो उठता है। ऐसे वातावरण में जब युवती अपना मानसिक सन्तुलन खो बैठती है तभी वह आत्महत्या के लिए विवश हो उठती है। उपन्यास 'नया रास्ता' की मुख्य पात्रा मीनू भी इसका शिकार होती है। गुणवती होने पर भी उसे रूप और दहेज की कमी होने के कारण लड़के वाले अस्वीकार कर देते हैं।

Answer 14.

- (i) माँ ने मिसरानी द्वारा कही गई बात उमा को बतायी। माँ अपने बड़े बेटे अविनाश की विजातीय बहू को स्वीकार नहीं करती, जिससे अविनाश उससे अलग रहता है। अविनाश के बीमार पड़ने पर बहू अकेली उसकी सेवा करती थी। 'बहू अकेली थी' इसलिए कहा गया है।
- (ii) बहू की विशेषताएँ: बहू अविनाश की सेवा करती है। हैजा होने पर अविनाश की तन-मन से सेवा करती है। अकेली होने पर भी ससुराल वालों से मदद नहीं माँगती। वह स्वयं दवा लाती, घर का काम भी करती और अविनाश की देखभाल भी करती है।
- (iii) माँ का चरित्र-चित्रण: एकांकी में माँ संक्रांति काल की एक हिंदू नारी है जो रूढ़िवादी है और प्राचीन काल के संस्कारों के जाल में फँसी हुई है। इसी कारण वह अविनाश की विजातीय बहू को स्वीकार नहीं करती है। वह जातिवाद को मानती है। इसी कारण बीमार बेटे से मिलने नहीं जाती। जब माँ को विजातीय बहू के मरणासन्न होने की खबर मिलती है, तब उसकी ममतामयी भावना जाग उठती है। उसे पता है कि बहू को कुछ हो गया तो उसका बेटा भी जिंदा नहीं रह पायेगा। माँ का हृदय परिवर्तित हो जाता है और अंत में वह अपनी बहू को अपना देने के लिए तैयार हो जाती है। फिर वह संस्कारों की दासता से मुक्त हो जाती है।
- (iv) समाज के लिए जातिवाद अहितकर है। जातिवाद के कारण समाज अनगिनत वर्गों में बँट चुका है। लोग अपनी जाति को ऊँचा तथा अन्य जातियों को हीन समझकर उनका तिरस्कार करते हैं। इस कारण समाज में वैमनस्य बढ़ता है तथा सद्भावना एवं एकता खंडित होती है।

एकांकी में माँ अविनाश के अंतर्जातीय विवाह को स्वीकार नहीं करती। वह जातिवाद की बेड़ियों में जकड़ी होने के कारण अपने बेटे से दूर हो जाती है।

Answer 15.

- (i) यहाँ वक्ता धृतराष्ट्र हैं और श्रोता उनके मंत्री संजय हैं। ये दोनों हस्तिनापुर के राजदरबार में दुर्योधन के संदर्भ में बातें कर रहे हैं। संजय ने महाराज धृतराष्ट्र को द्रवैतवन के सरोवर में आत्मरक्षा हेतु दुर्योधन के छिपने की जानकारी दी।
- (ii) द्रवैतवन कुरुक्षेत्र के निकट स्थित है। वहाँ के अहेरियों से पांडवों को द्रवैतवन के सरोवर में दुर्योधन के छिपने की जानकारी मिली, तो वे उसे खोजते हुए वहाँ पहुँचे।
- (iii) सुयोधन 'दुर्योधन' को कहा गया है। अपनी आत्मरक्षा के लिए वह द्रवैतवन के सरोवर में घुस कर, उसके जल स्तंभ में छिपकर बैठ जाता है। वह आत्मरक्षा के उपाय में असफल रहता है। सरोवर में उसके छिपने की जानकारी पांडवों को हो जाती है और वे उसे खोजते हुए वहाँ पहुँच जाते हैं और उसे युद्ध के लिए ललकारते हैं।
- (iv) महाभारत का युद्ध कौरवों और पांडवों के बीच हुआ था। प्रस्तुत एकांकी का शीर्षक 'महाभारत की एक साँझ' सर्वथा उपयुक्त है। घायल दुर्योधन आत्मरक्षा हेतु सरोवर में छिप जाता है। पांडव उसे युद्ध के लिए ललकारते हैं। भीम और दुर्योधन के बीच गंधा युद्ध होता है। अंततः दुर्योधन मारा जाता है। जिस प्रकार दिन के अंत में साँझ का आगमन होता है, उसी प्रकार महाभारत में दुर्योधन का अंत 'महाभारत' की साँझ का प्रतीक माना जाता है। इस प्रकार शीर्षक सटीक एवं सार्थक है, और अपना औचित्य सिद्ध करता है।

Answer 16.

- (i) वक्ता: सोना-रावल सरूपसिंह की अत्यंत सलोनी एवं रूपवती पुत्री थी। सोलह वर्षीय सोना कुँवर उदय सिंह के बचपन की मित्र है। वह नृत्यकला में पारंगत है। बनवीर द्वारा दिए गए प्रलोभनों की ओर आकर्षित होती है। स्वभाव से नटखट भी है। कुँवर के साथ खेलती है। वह वाक्पटु भी है।
- (ii) वक्ता सोना श्रोता पन्ना धाय को राजमहल पर पहाड़ जैसा बोझ बनकर रहने से अच्छा नदी की तरह बहते रहने का सुझाव देती है। वह कहती है कि अगर तुम नदी बनकर रहोगी तो तुम्हारे जीवन में आनंद और मंगल का प्रवाह सदा बना रहेगा। सोना कहती है कि पन्ना बनवीर पर संदेह न करे और दीपदान के उत्सव में भाग लें।
- (iii) श्रोता 'पन्ना-धाय' अनुभवी है। वह अच्छी तरह समझती है कि ऐसे उत्सवों के पीछे एक षड्यंत्र रचा गया है। इन्हीं उत्सवों के बहाने सत्ता परिवर्तन तथा किसी विशेष व्यक्ति की हत्या अवश्य होती है। इसलिए वह उस उत्सव में न तो स्वयं जाती है न ही उदयसिंह को भेजती है। वह सोना को भी समझाती है। वह यह भी कहती है कि 'चितौड़' राग-रंग की भूमि नहीं है, जौहर की भूमि है।
- (iv) श्रोता 'पन्ना-धाय' का चरित्र सबके लिए प्रेरणादायक है। वह देश-प्रेम की भावना हर पाठक के दिल में जगाती है। 'पन्ना-धाय' महाराणा सांगा के छोटे पुत्र उदयसिंह की संरक्षिका है। बनवीर से कुँवर की रक्षा हेतु अपने पुत्र चंदन का बलिदान कर देती है। उसकी कर्तव्यनिष्ठा सबके लिए प्रेरणादायक है। अपनी स्वामिभक्ति व राष्ट्रीयता के गुणों के कारण वह आदर्श भारतीय नारी का अनुपम उदाहरण पेश करती है। वह एक सच्ची भारतीय वीरांगना व अमर पात्रा है।



QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in Hindi of approximately 250 words on any one of the following topics :

[15]

निम्नलिखित विषयों में से किसी एक विषय पर हिंदी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- आपके विद्यालय में एक मेले का आयोजन किया गया था। यह किस अवसर पर, किस उद्देश्य से किया गया था? उसके लिए आपने क्या-क्या तैयारियाँ कीं? आपने और आपके मित्रों ने एवं शिक्षकों ने उसमें क्या सहयोग दिया था? इन बिन्दुओं को आधार बनाकर एक प्रस्ताव विस्तार से लिखिए।
- यात्रा एक उत्तम रुचि है। यात्रा करने से ज्ञान तो बढ़ता ही है, स्थान विशेष की संस्कृति तथा परम्पराओं का परिचय भी मिलता है। अपनी किसी यात्रा के अनुभव तथा रोमांच का वर्णन करते हुए एक प्रस्ताव लिखिए।
- 'वन है तो भविष्य है' आज हम उसी भविष्य को नष्ट कर रहे हैं, कैसे? कथन को स्पष्ट करते हुए जीवन में वनों के महत्व पर अपने विचार लिखिए।
- एक मौलिक कहानी लिखिए जिसका अन्त प्रस्तुत वाक्य से किया गया हो—और मैंने राहत की साँस लेते हुए सोचा कि आज मेरा मानव जीवन सफल हो गया।
- नीचे दिए गए चित्र को ध्यान से देखिए और चित्र को आधार बनाकर उसका परिचय देते हुए कोई लेख, घटना अथवा कहानी लिखिए, जिसका सीधा व स्पष्ट संबंध, चित्र से होना चाहिए।



Question 2.

Write a letter in Hindi in approximately 120 words on any one of the topics given below :

[7]

निम्नलिखित में से किसी एक विषय पर हिंदी में लगभग 120 शब्दों में पत्र लिखिए:

- आप अपने परिवार के साथ किसी एक प्रदर्शनी (Exhibition) को देखने गए थे। वहाँ पर आपने क्या-क्या देखा? वहाँ कौन-कौन सी चीजों ने आकर्षित किया? जीवन में उनकी क्या उपयोगिता है? अपना अनुभव बताते हुए अपने प्रिय मित्र को पत्र लिखिये।

- दिन-प्रतिदिन बढ़ते हुए जल संकट की ओर ध्यान आकर्षित करते हुए नगर-पालिका के अध्यक्ष को एक पत्र लिखिए। जिसमें वर्षा के जल का संचयन (rain-water harvesting) करने के लिए व्यापक स्तर पर परियोजना चलाने का सुझाव दिया गया हो।

Question 3.

Read the passage given below and answer in Hindi the questions that follow, using your own words as far as possible :

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे गए प्रश्नों के उत्तर हिंदी में लिखिए। उत्तर यथासंभव आपके अपने शब्दों में होने चाहिए :

एक रियासत थी। उसका नाम था कंचनगढ़। वहाँ बहुत गरीबी थी। लोग कमजोर थे और धरती में कुछ उगता न था। चारों ओर भुखमरी थी। एक दिन राजा कंचनदेव राज्य की दशा से चिंतित हो उठे। अचानक उनके पास एक साधु आए। राजा ने उन्हें प्रणाम किया। राजा ने साधु को अपने राज्य के बारे में बताया कुछ उपाय करने की प्रार्थना की। साधु मुस्कराकर बोले—“कंचनगढ़ के नीचे सोने की खान है।” इतना कहकर साधु चले गए। राजा ने खुदाई करवाई। वहाँ सोने की खान निकली। राजा का खजाना सोने से भर गया। राजा ने अपने राज्य में जगह-जगह मुफ्त भोजनालय बनवाए, दवाखाने खुलवाए, चारागाह बनवाए तथा अन्य सुख-सुविधा के साधन उपलब्ध करा दिए। अब वहाँ कोई दुखी नहीं था। सब लोग खुश थे। धीरे-धीरे लोग आलसी हो गए। कोई काम नहीं करता था। भोजन तक मुफ्त में मिलने लगा था। मन्त्री ने राजा को बहुत समझाया और कहा—“महाराज, लोग आलसी होते जा रहे हैं। उनको काम दिया जाए।” परन्तु राजा ने मन्त्री की बात को टाल दिया।

कंचनगढ़ की समृद्धि को देखकर पड़ोसी रियासत के राजा को ईर्ष्या हुई। उसने अचानक कंचनगढ़ पर चढ़ाई कर दी और माँग की — “सोना दो या लड़ो।” कंचनगढ़ के आलसी लोगों ने राजा से कहा—“हमारे पास बहुत सोना है, कुछ दे दें। बेकार खून क्यों बहाया जाए?” राजा ने लोगों की बात मान ली और सोना दे दिया। कुछ दिनों बाद उसी पड़ोसी राजा ने कंचनगढ़ पर फिर चढ़ाई कर दी। इस बार उसका लालच और बढ़ गया था। इसी प्रकार उसने कई बार चढ़ाई कर-करके कंचनगढ़ से सोना ले लिया। यह सब देखकर राजा का मन्त्री बहुत परेशान हो गया। वह राजा को समझाना चाहता था, किन्तु राजा के सम्मुख कुछ बोलने की हिम्मत नहीं हो पा रही थी। अंत में उसने युक्ति से काम लिया। एक दिन मन्त्री कंचनदेव को घुमाने के लिए नगर के पूर्व की ओर बने गुलाब के बाग की ओर ले गया। राजा कंचनदेव ने देखा कि बाग में दाने बिखरे पड़े हैं। कबूतर दाना चुग रहे हैं। थोड़ी दूर कुछ कबूतर मरे पड़े हैं। कुछ भी समझ में न आने पर राजा ने मरे हुए कबूतरों के बारे में मन्त्री से पूछा।

मंत्री ने बताया — “महाराज, इन्हें शिकारी पक्षियों ने मारा है।” राजा ने पूछा — “तो कबूतर भागते क्यों नहीं?” “भागते हैं लेकिन लालच में फिर से आ जाते हैं, क्योंकि उनके लिए यहाँ आपकी आज्ञा से दाना डाला जाता है।” — मंत्री ने बताया। राजा ने कहा — “दाना डलवाना बंद कर दो।” मंत्री ने वैसा ही किया।

राजा अगले दिन फिर घूमने निकले। उन्होंने देखा कि दाना तो नहीं है, किन्तु कबूतर आ-जा रहे हैं। राजा ने मंत्री से इसका कारण पूछा। मंत्री ने बताया — “महाराज, इन्हें बिना प्रयास के ही दाना मिल रहा था। यह अब दाने-चारे की तलाश की आदत भूल चुके हैं, आलसी हो गए हैं। शिकारी पक्षी इस बात को जानते हैं कि कबूतर तो यहीं आएँगे अतः वे इन्हें आसानी से मार डालते हैं।” राजा चिन्ता में पड़ गए। उन्होंने शाम को मंत्री को बुलाकर कहा — “नगर के सारे मुफ्त भोजनालय बन्द करवा दो। जो मेहनत करे, वही खाए। लोग निकम्मे और आलसी होते जा रहे हैं। और हाँ, एक बात और। मैं अब शत्रु को सोना नहीं दूँगा, बल्कि उससे लड़ाई करूँगा। जाओ, सेना को मजबूत करो।” मंत्री राजा की बात सुनकर बहुत खुश हो गया।

- राजा कंचनदेव की चिन्ता का क्या कारण था? उन्होंने साधु से क्या प्रार्थना की? [2]
- साधु ने राजा को क्या बताया? उसके बाद राजा ने राज्य के लिए क्या-क्या कार्य किये? [2]
- पड़ोसी राजा के आक्रमण करने पर कंचनगढ़ का राजा क्या करता था और क्यों? [2]
- कबूतरों की दशा कैसी थी? उस दशा को देखकर राजा ने क्या सीखा? [2]
- राजा ने मंत्री को क्या आदेश दिए? आदेश सुनकर मंत्री की क्या स्थिति हुई? [2]

Question 4.

Answer the following according to the instructions given :
निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विलोम लिखिए—
अपना, देव, नवीन, सम्मानित। [1]
- निम्नलिखित शब्दों में से किसी एक शब्द के दो पर्यायवाची शब्द लिखिए—
इच्छा, आदेश, शिक्षक। [1]
- निम्नलिखित शब्दों में किन्हीं दो शब्दों से भाववाचक संज्ञा बनाइए—
सफेद, युवा, हिंसक, जागना [1]
- निम्नलिखित शब्दों में से किन्हीं दो शब्दों के शुद्ध रूप लिखिए—
कवित्री, अशीरवाद, कृतग्य, विदूशी। [1]
- निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए—
चंपत होना, डोंग हाँकना। [1]
- कोष्ठक में दिए गए वाक्यों में निर्देशानुसार परिवर्तन कीजिए—
(a) प्राचीन काल में लोग पत्तों की बुनी कुटिया में रहते थे। [1]
(रेखांकित का एक शब्द लिखते हुए वाक्य पुनः लिखिए।)

- बीमार होने के कारण सुमन समारोह में नहीं आ सकी। [1]
(‘इसलिए’ का प्रयोग कर वाक्य पुनः लिखिए)
- बच्चे आम तोड़ने के लिए वृक्षों पर चढ़ गए थे। [1]
(वचन बदलिए)

SECTION 'B' (40 Marks)

Questions from only **two** of the following textbooks are to be answered.

Attempt **four** questions from this section.

You must answer at least **one** question from each of the **two** books, you have studied and any **two** other questions from the same books that you have chosen.

साहित्य सागर—संक्षिप्त कहानियाँ (Sahitya Sagar—Short Stories)

Question 5.

Read the extract given below and answer in **Hindi** the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

उसके अन्तस्तल में वह शोक जाकर बस गया था। वह प्रायः अकेला बैठा-बैठा शून्य मन से आकाश की ओर ताका करता। एक दिन उसने ऊपर आसमान में पतंग उड़ती देखी। न जाने क्या सोचकर उसका हृदय एकदम खिल उठा। विश्वेश्वर के पास जाकर बोला, “काका ! मुझे एक पतंग मँगा दो।”

[‘काकी’ —सियारामशरण गुप्त]

(‘Kaki’—Siyaramsharan Gupta)

- ‘उसके’ शब्द का प्रयोग किसके लिए किया गया है? उसके दुखी होने का क्या कारण था? [2]
- क्या देखकर उसका हृदय खिल उठा था? उसने अपने पिता से क्या माँगा? [2]
- उसने उस चीज का प्रबन्ध कैसे किया? क्या उसके इस कार्य को अपराध कहना उचित होगा? समझाइए। [3]
- विश्वेश्वर ने बालक के साथ कैसा व्यवहार किया? संक्षेप में समझाते हुए उनके इस तरह के व्यवहार का कारण तथा सच्चाई जानने के बाद की स्थिति का भी वर्णन कीजिए। [3]

Question 6.

Read the extract given below and answer in **Hindi** the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

विदेशों में उसके चित्रों की धूम मच गयी। भिखारिन और दो अनाथ बच्चों के उस चित्र की प्रशंसा में तो अखबारों के कॉलम के कॉलम भर गए। शोहरत से ऊँचे कगार पर बैठ चित्रा जैसे अपना सब कुछ भूल गयी।

[‘दो कलाकार’—मन्नू भंडारी]

(‘Do Kalakar’—Mannu Bhandari)

- ‘उसके चित्रों’ से क्या तात्पर्य है? समझाइए। [2]
- चित्रा कौन थी? उसके चरित्र की मुख्य विशेषता को बताइए। [2]

- (iii) अरुणा कौन थी जब उसे भिखारिन वाली घटना का पता चला तो उस पर क्या प्रभाव पड़ा और उसने क्या किया? [3]
- (iv) चित्रकारिता और समाज सेवा में आप किसे उपयोगी मानते हैं और क्यों? कहानी के माध्यम से समझाइए। [3]

Question 7.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

मैंने देखा कि कुहरे की सफेदी में कुछ ही हाथ दूर से एक काली-सी मूर्ति हमारी तरफ आ रही थी। मैंने कहा—“होगा कोई।” तीन गज की दूरी से दिख पड़ा, एक लड़का, सिर के बड़े-बड़े बाल खुजलाता चला आ रहा था। नंगे पैर, नंगे सिर, एक मैली सी कमीज लटकाए है।

['अपना-अपना भाग्य'—जैनेन्द्र कुमार]

('Apna-Apna Bhagya'—Jainendra Kumar)

- (i) यहाँ पर किस बालक के सन्दर्भ में कहा गया है? उस समय उसकी क्या स्थिति थी? [2]
- (ii) बालक ने अपने घर-परिवार के सम्बन्ध में क्या-क्या बताया? [2]
- (iii) इस समय उस बालक के सामने कौन-सी समस्या थी? क्या उस समस्या का हल हो पाया? यदि नहीं तो क्यों? [3]
- (iv) इस कहानी के माध्यम से लेखक ने हमें क्या सन्देश देना चाहा है? उदाहरण सहित स्पष्ट कीजिए। [3]

साहित्य सागर—पद्य

(Sahitya Sagar—Poems)

Question 8.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“मैया मेरी, चंद्र खिलौना लेहों।
धौरी को पय पान न करिहों, बेनी सिर न गुथैहों।
मोतिन माल न धरिहों उर पर झुंगली कंठ न लैहों।
जैहों लोट अबहिं धरनी पर, तेरी गोद न ऐहों।।
लाल कहैहों नंद बाबा को, तेरो सुत न कहैहों।।”

['सूर के पद'—सूरदास]

('Sur Ke Pad'—Surdas)

- (i) प्रस्तुत पद्य में कौन अपनी माता से ज़िद कर रहे हैं? वे क्या प्राप्त करना चाहते हैं? [2]
- (ii) उनकी माता कौन हैं? वे अपने पुत्र को देखकर कैसा अनुभव कर रही हैं? स्पष्ट कीजिए। [2]
- (iii) खिलौना न मिलने की स्थिति में बाल कृष्ण अपनी माँ को क्या-क्या धमकियाँ दे रहे हैं? स्पष्ट कीजिए। [3]
- (iv) रूठे हुए बालक को बहलाने के लिए माँ क्या कहती है? बालक पर उसका क्या प्रभाव पड़ता है? सूरदास जी की भक्ति भावना का परिचय देते हुए समझाइए। [3]

Question 9.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“न्यायोचित सुख सुलभ नहीं

जब तक मानव-मानव को

चैन कहाँ धरती पर तब तक

शांति कहाँ इस भव को?

जब तक मनुज-मनुज का यह

सुख भाग नहीं सम होगा

शमित न होगा कोलाहल

संघर्ष नहीं कम होगा।”

['स्वर्ग बना सकते हैं'—रामधारी सिंह 'दिनकर']

['Swarg Bana Sakte Hai'—Ramdhari Singh 'Dinkar']

- (i) 'भव' शब्द का क्या अर्थ है? कवि के अनुसार इस भव में शान्ति क्यों नहीं है? [2]
- (ii) शब्दों के अर्थ लिखिए—न्यायोचित, सम, सुलभ, कोलाहल। [2]
- (iii) 'शमित न होगा कोलाहल संघर्ष नहीं कम होगा' पंक्ति का भावार्थ लिखिए। [3]
- (iv) उपरोक्त पंक्तियाँ 'दिनकर जी' की किस प्रसिद्ध रचना से ली गई हैं? कविता का केन्द्रीय भाव लिखते हुए बताइए। [3]

Question 10.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

जन्मे जहाँ थे रघुपति, जन्मी जहाँ थी सीता।

श्री कृष्ण ने सुनाई, वंशी पुनीत गीता।।

गौतम ने जन्म लेकर जिसका सुयश बढ़ाया।

जग को दया दिखाई, जग को दिया दिखाया।।

वह युद्धभूमि मेरी, वह बुद्धभूमि मेरी।

वह जन्मभूमि मेरी, वह मातृभूमि मेरी।।

['वह जन्मभूमि मेरी'—सोहनलाल द्विवेदी]

('Wah Janmabhumi Meri'—Sohanlal Dwivedi)

- (i) प्रस्तुत कविता किस प्रकार की है? इस कविता में किसका गुणगान किया गया है? [2]
- (ii) कवि ने भारत को युद्धभूमि और बुद्धभूमि क्यों कहा है? समझाकर लिखिए। [2]
- (iii) प्रस्तुत कविता में जन्मभूमि की किन-किन प्राकृतिक विशेषताओं का उल्लेख किया गया है? स्पष्ट कीजिए। [3]
- (iv) प्रस्तुत पद्यांश में कवि ने भारत को किन-किन महापुरुषों की भूमि कहा है? कविता का केन्द्रीय भाव लिखते हुए स्पष्ट कीजिए। [3]

नया रास्ता (सुषमा अग्रवाल)
(Naya Raasta—Sushma Agarwal)

Question 11.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

- “मीनू.....अरे मीनू कैसे कर सकती है? यह रस्म तो शादीशुदा बहन ही कर सकती है। मीनू की तो अभी शादी भी नहीं हुई।”
- (i) उपर्युक्त कथन की वक्ता कौन है उसका परिचय दीजिए। [2]
- (ii) वक्ता ने क्यों कहा कि मीनू यह रस्म नहीं कर सकती? यहाँ किस रस्म की बात हो रही है? [2]
- (iii) वक्ता की बात सुनकर मीनू तथा मीनू की माँ की स्थिति का वर्णन करते हुए बताइए कि क्या उसके द्वारा वह रस्म पूरी की गई थी? स्पष्ट कीजिए। [3]
- (iv) “एक अविवाहित स्त्री को समाज में उचित सम्मान नहीं मिलता।” उपन्यास के आधार पर अपने विचार लिखिए। [3]

Question 12.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

- आखिर सरिता को देखने का दिन आ ही गया। अमित के घर में विशेष चहल-पहल थी। अमित की माताजी में विशेष उत्साह नजर आ रहा था। माताजी के कहने में आकर उसके पिता भी इस रिश्ते में रुचि लेने लगे थे। अमित की बहन मधु भी अपनी होने वाली भाभी को देखने के लिए उत्सुक थी।
- (i) अमित कौन है? उसका संक्षिप्त परिचय दीजिये। [2]
- (ii) विशेष चहल-पहल का क्या कारण था? इस अवसर पर अमित की स्थिति स्पष्ट कीजिए। [2]
- (iii) मायारामजी की स्वर्ग की अनुभूति कहाँ और कैसे होती है और क्यों होती है? [3]
- (iv) अमित और सरिता के बीच हुई बातचीत को संक्षेप में लिखिये। [3]

Question 13.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

- मीनू के हृदय में बचपन से ही अपंगों के लिए दया की भावना थी, परन्तु मनोहर को तो वैसे वह बचपन से जानती थी। इसीलिए उसकी यह हालत उससे देखी नहीं जा रही थी। मीनू ने मन ही मन निश्चय किया कि वह किसी न किसी रूप में मनोहर की सहायता अवश्य करेगी। विवाह के फालतू खर्च में से कुछ रुपये बचाकर अपाहिज मनोहर की सहायता करने का उसने संकल्प लिया।
- (i) मनोहर कौन था? वह मीनू के पास क्यों आया था? [2]
- (ii) उसकी यह दशा कैसे हो गयी थी? संक्षेप में समझाइए। [2]
- (iii) मीनू ने मन ही मन क्या निश्चय किया और मनोहर की सहायता कैसे की? [3]

- (iv) मीनू के इस कार्य से आपको क्या प्रेरणा मिलती है? क्या आपने भी कभी किसी की इस प्रकार से सहायता की है, समझाइए। [3]

एकांकी संचय
(Ekanki Sanchay)

Question 14.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

- अब भी आँखें नहीं खुलीं? जो व्यवहार अपनी बेटी के लिए दूसरों से चाहते हो वही दूसरे की बेटी को भी दो। जब तक तुम बहू और बेटी को एक-सा नहीं समझोगे, न तुम्हें सुख मिलेगा न शांति।
- [‘बहू की विदा’—विनोद रस्तोगी]
(‘Bahu ki Vida’—Vinod Rastogi)
- (i) वक्ता का परिचय देते हुए कथन का सन्दर्भ लिखिए। [2]
- (ii) “अब भी आँखें नहीं खुलीं?” कहने से वक्ता का क्या अभिप्राय है? पाठ के सन्दर्भ में समझाइए। [2]
- (iii) एकांकी के अन्त में श्रोता क्या फैसला लेता है क्यों? समझाइए। [3]
- (iv) इस एकांकी से आपको क्या शिक्षा मिलती है? एकांकी के उदाहरण सहित स्पष्ट कीजिए। [3]

Question 15.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

- आपके विवेक पर सबको विश्वास है। मैं आपसे निवेदन करने आई हूँ कि यद्यपि समय के फेर से आज हाड़ा, शक्ति और साधनों में मेवाड़ के उन्नत राज्य से छोटे हैं, फिर भी वे वीर हैं। मेवाड़ को विपत्ति के दिनों में सहायता देते रहे हैं। यदि उनसे कोई धृष्टता बन पड़ी हो, तो महाराणा उसे भूल जाएँ और राजपूत शक्तियों में स्नेह का सम्बन्ध बना रहने दें।

[‘मातृभूमि का मान’—हरिकृष्ण ‘प्रेमी’]
(‘Matribhoomi Ka Man’—Harikrishna ‘Premi’)

- (i) प्रस्तुत कथन, किसने, किससे कहा है? स्पष्ट कीजिए। [2]
- (ii) मेवाड़ को विपत्ति के दिनों में किसने सहायता दी है? चारणी यह बात क्यों याद दिलाती है? स्पष्ट कीजिए। [2]
- (iii) चारणी ने महाराणा को अपनी प्रतिज्ञा पूरी करने का क्या उपाय बताया? यह कितना उचित था, इस सन्दर्भ में अपने विचार दीजिए। [3]
- (iv) ‘मातृभूमि का मान’ कैसी एकांकी है? शीर्षक की सार्थकता सिद्ध करते हुए बताइए। [3]

Question 16.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

- बेटा, बड़प्पन बाहर की वस्तु नहीं — बड़प्पन तो मन का होना चाहिए। और फिर बेटा, घृणा को घृणा से नहीं मिटाया जा सकता।

बहु तभी पृथक होना चाहेगी जब उसे घृणा के बदले घृणा दी जाएगी। लेकिन यदि उसे घृणा के बदले स्नेह मिले तो उसकी समस्त घृणा धुंधली पड़कर लुप्त हो जाएगी।

['सूखी डाली'—उपेन्द्रनाथ 'अशक']

('Sukhi Dali'—Upendranath 'Ashka')

(i) प्रस्तुत कथन का वक्ता कौन है? उसका संक्षिप्त परिचय दीजिए।

[2]

(ii) श्रोता ने वक्ता को छोटी बहू के सम्बन्ध में क्या बताया था?

[2]

(iii) वक्ता ने परिवार में एकता बनाये रखने का क्या उपाय निकाला? क्या वे इसमें सफल हुए? स्पष्ट कीजिए।

[3]

(iv) प्रस्तुत एकांकी किस प्रकार की एकांकी है? इस एकांकी लेखन का क्या उद्देश्य है?

[3]

ANSWERS

SECTION 'A'

Answer 1.

(i) विद्यालय में आयोजित मेले का वर्णन

भारतीय संस्कृति में मेलों का विशेष महत्व है। मेला व्यापार का केन्द्र ही नहीं बल्कि मनोरंजन का भी उत्तम साधन है। ऐसे ही एक मेले का आयोजन हमारे विद्यालय में हुआ। विद्यालय का स्वर्ण जयन्ती वर्ष था तो इस दिन पर कुछ विशेष करने का निश्चय किया गया और सभी अध्यापकों के सुझाव पर एक मेले का आयोजन करना सुनिश्चित किया गया।

मेले की रूपरेखा बनाने के लिए अध्यापकों व दसवीं कक्षा के कुछ छात्रों की एक समिति बनायी गई। उस छात्र मण्डल के सदस्यों में मैं और मेरे मित्र भी थे। हम सब में अति उत्साह और जोश था। समिति की बैठक तीन से चार घण्टे तक चली। मेले का आयोजन कब, कहाँ, कैसे और कितने दिनों तक होगा आदि विषयों पर गहन चिंतन-मनन हुआ। निर्णय यह किया गया कि मेले का आयोजन दो दिन (शनिवार व रविवार) को विद्यालय के खेल मैदान में किया जाएगा। यह भी निर्णय लिया गया कि मेले से होने वाले लाभ को अनाथ आश्रम के बच्चों की शिक्षा के लिये सहयोग राशि के रूप में दिया जायेगा।

मेले का प्रवेश शुल्क 20 रुपये तय किया गया था। योजनानुसार मेले की पूरी तैयारी जोर-शोर से चल रही थी। मैदान के एक कोने में सांस्कृतिक कार्यक्रम भी रखा गया। कपड़े, खिलौने, साज-सज्जा का सामान, रसोईघर का सामान आदि कई दुकानें लगायी गयीं। मेले में कुछ मनोरंजक खेल भी रखे गए, जिसका आयोजन कक्षा दसवीं के छात्रों ने किया। शिक्षकों को टिकट काउंटर्स पर बिठाया गया।

मेले में हमने एक तरफ भारत के स्वतन्त्रता सेनानियों व दुनिया के सात अजूबों की प्रदर्शनी भी लगायी। इस प्रदर्शनी की पूरी जिम्मेदारी मुझ पर और मेरे दोस्त पर थी। भूगोल और इतिहास की अध्यापिका ने इसमें हमारा मार्गदर्शन किया और सहयोग भी दिया। मेले में आए हर व्यक्ति ने इस प्रदर्शनी की खूब तारीफ की। यह प्रदर्शनी ज्ञानवर्धक भी थी।

खाने-पीने की दुकानों में बहुत भीड़ थी। मेले में शाम को रंग-बिरंगी लाइट जला दी गई थी, जिसके कारण यह दृश्य बहुत ही मनोहर लग रहा था।

हम सब छात्रों व अध्यापकों द्वारा इस मेले का आयोजन सार्थक सिद्ध हुआ। करीब-करीब एक लाख चालीस हजार रुपये इकट्ठे

हुए। हमारे प्रधानाचार्य के सुझावानुसार अनाथ आश्रम के बच्चों के नाम पूरी धनराशि दान कर दी गई।

इस तरह मेले के आयोजन से हमें एक अनोखी खुशी मिली। यह मेला मेरे लिए अविस्मरणीय था। मेले से मानवता की ओर उठे ये कदम कई दिलों में परोपकार की लौ जगा गए और नन्हें मासूम बच्चों के मन में कुछ बनने की आशा जगा गए।

(ii) एक अविस्मरणीय यात्रा का रोमांच तथा अनुभव

कौतूहल या जिज्ञासा मानव की एक मूल प्रवृत्ति है। नित नवीन स्थानों, लोगों को जानने देखने के लिए वह सदैव आतुर रहा है। इसी उत्सुकता की पूर्ति के लिए मनुष्य यात्रा करता है। यात्रा ज्ञान प्राप्त करने का उत्तम साधन है। यात्रा पर जाने से हम उस स्थान की नयी-नयी जानकारी, खान-पान, पहनावा, वहाँ की संस्कृति के बारे में जान सकते हैं।

पिछले वर्ष मुझे भी ऐसी ही एक यात्रा करने का अवसर मिला, जिसमें मैंने बहुत कुछ सीखा और जाना। मैं और मेरे दो दोस्तों ने ऊटी जाने का निश्चय किया। दो दिनों के लिये हमारा बजट 15 हजार बना जिसमें हमने आने जाने का खर्चा और रहना-खाना भी सम्मिलित करने का निश्चय किया। ऊटी नीलगिरि की राजधानी है, इसे उदगमंडल के नाम से भी जाना जाता है। यह स्थान समुद्रतल से 2200 मीटर की ऊँचाई पर है। हमारी गाड़ी पर्वतों के घुमावदार रास्ते से आगे बढ़ रही थी। चारों ओर हरियाली थी। प्रकृति के सान्निध्य का आनन्द रोमांचक था। चाय बगानों को पहली बार देखा था।

शाम तक हम होटल पहुँच गये। फिर हम कुछ खा-पीकर बाहर निकले। हम दोदाबेट्टा पीक पर पहुँचे। यह स्थान ऊटी का सबसे ऊँचा स्थान है। हल्की-हल्की ठण्ड और तेज हवाएँ और प्रकृति की अनुपम सुन्दरता। ऐसा लग रहा था मानो धरती का स्वर्ग यहीं है। अगले दिन हम मुदुमलाई अभयारण्य गए। यहाँ बहुत से पेड़-पौधे और जीव-जन्तुओं की दुर्लभ प्रजातियाँ हैं। हमें हाथी, बड़ी गिलहरियाँ, साँभर, चीतल, भौंकने वाले हिरण और जंगली बिल्लियाँ देखने को मिलीं। रंग-बिरंगे तोते, काले कठफोड़वे, गरुड़ आदि नाना प्रकार के पक्षियों को भी देखा।

हम नौका विहार के लिए ऊटी झील भी गये। नौका विहार का आनन्द अविस्मरणीय था। नीलगिरि की पर्वतमालाओं में एक विशिष्ट जनजाति रहती है—“टोडा”। हमने इन आदिवासियों के घर देखे। इनके घर बांस और नारियल के सूखे पत्तों से बने थे। कृषि इनके जीवन निर्वाह का प्रमुख साधन था। इस जनजाति की भाषा में तमिल भाषा के काफी शब्द पाये जाते हैं। इनके खान-पान में चावल और सब्जी प्रमुख है।

हमने ऊटी में घुड़सवारी भी की। ऊटी से हमने हाथ से बनी चॉकलेट, नीलगिरि तेल और इलायची वाली चाय पत्ती खरीदी।

यह यात्रा मेरे लिए ज्ञानवर्धक और मनोरंजक साबित हुई। विभिन्न स्थानों की जानकारी और कुछ अच्छे समय व्यतीत करने के उद्देश्य से हम सबको वर्ष में एक बार ऐसे किसी स्थान का भ्रमण अवश्य करना चाहिये।

(iii) “वन है तो भविष्य है”

“वन है तो भविष्य है।” वृक्षों के समूह को वन, जंगल या कानन कहते हैं। वन प्रकृति का अनुपम हिस्सा हैं। वृक्ष और वन हमारे लिए वरदान हैं। हमारी प्राणवायु का स्रोत भी वन ही हैं।

प्राकृतिक सौन्दर्य तथा पर्यावरण का आधार वन हैं। वन, वर्षा में सहायक होते हैं तथा वायु को शुद्ध करते हैं। भूमि कटाव को रोकने, भूमि को उर्वरक बनाने में भी इनका महत्वपूर्ण योगदान है।

सभ्यता के विकास के साथ-साथ वनों की अन्धाधुन्ध कटाई होती गई तथा भारत ही नहीं, पूरे विश्वभर में मानव ने प्रकृति को भरपूर क्षति पहुँचाई। जनसंख्या की उत्तरोत्तर वृद्धि भी वनों के ह्रास का कारण बनी। वनों की कटाई जारी रहने से धीरे-धीरे उपजाऊ भूमि बंजर होती गई। मौसम चक्र में बदलाव आने लगा। कहीं बाढ़ तो कहीं सूखा पड़ने लगा। औद्योगिक विकास के अन्तर्गत कारखानों की स्थापना के लिए वनों को काटा गया। इस कारण वृक्षों की अनेक प्रजातियाँ भी लुप्त हो गयीं। प्रदूषण का प्रकोप भी बढ़ता जा रहा है।

मानव का जीवन आज भी वनों पर आश्रित है। वन हमारी आर्थिक सम्पदा के स्रोत हैं। देश में प्रयुक्त 80% ईंधन और फर्नीचर के लिए लकड़ी हमें वनों से ही प्राप्त होती है। हमारा वर्तमान और भविष्य वनों पर ही निर्भर है।

वनों के इस महत्व को आज विश्वभर में समझा जा रहा है। सन् 1952 में सरकार ने नई वन नीति की घोषणा करके वन महोत्सव की प्रेरणा दी। वनों की रक्षा तथा समतल व पर्वतीय प्रदेशों में वृक्षारोपण करने का निश्चय किया गया। सरकार ने वनों की कटाई पर भी रोक लगा दी।

आज अनेक सामाजिक संस्थाएँ भी वृक्षारोपण के लिए समय-समय पर ‘वृक्ष लगाओ’ अभियान चलाती हैं। यदि सचमुच हम चाहते हैं कि मानव-जाति और उसके अस्तित्व की आधार स्थली धरती, प्रकृति का सन्तुलन बना रहे, तो हमें काटे जा रहे पेड़ों के अनुपात से कहीं अधिक पेड़ उगाने होंगे। अनावश्यक वन कटाव को कठोरता से रोकना होगा। हमारे वर्तमान और भविष्य को सुनहरा बनाने के लिए हम सबका बराबर योगदान होना अनिवार्य है। तो आइए—

“पेड़ लगाएँ वन बचाएँ,
जीवन में खुशहाली लाएँ”

(iv) “मेरा मानव जीवन सफल हुआ”

मानव जीवन दुर्लभ है। मानव जीवन की सार्थकता कुछ कर गुजरने में है। दूसरों के कष्टों को देखकर हम प्रभावित होते हैं और उन्हें दूर करने या कुछ कम करने के भाव हृदय में अवश्य उत्पन्न होते हैं। मुझमें इस भावना का बीज मेरे पिताजी ने बोया था। मेरे पिताजी सरकारी स्कूल में इतिहास पढ़ाते हैं। मैं भी उसी स्कूल में आठवीं कक्षा का छात्र हूँ। हमारा गाँव छोटा-सा था। हमारा यह सरकारी स्कूल भी बड़ा न था। पूरे स्कूल में मात्र दो अध्यापक ही थे। एक मेरे पिताजी और दूसरे मास्टर राजाराम।

गाँवों में अधिकांश लोग अनपढ़ थे और खेती करते थे। गाँव के 8-10 घरों में दूरदर्शन था। जहाँ स्कूल की छुट्टी के बाद हम सब जमा हो जाते और कार्टून देखते थे। कार्टून के बीच में आने वाले विज्ञापनों को भी हम बड़े शौक से देखते थे।

एक दिन मेरी नजर और सोच एक विज्ञापन पर टिक गई, वह विज्ञापन शौचालय के बारे में था। “शौचालय” एक नया विचार, एक नयी सोच थी मेरे लिए। हमारे गाँव में शौचालय नहीं था। शौचालय न होने के कारण लघु शंका अथवा नित्यकर्म के लिए घर से बाहर ही जाना पड़ता था।

मोदी जी ने शौचालय और उसकी स्वच्छता व महत्ता के बारे में “मन की बात” में बताया है। मैंने इस बारे में पिताजी से बात की, तो उन्होंने छोटा बच्चा समझकर बात को टाल दिया।

परन्तु मैंने मन ही मन यह संकल्प कर लिया कि गाँव में शौचालय जरूर बनवायेंगे और खुले में शौच नहीं जायेंगे। मैंने गाँव के पंचों से भी बात की। काका ने कहा, “अभी तेरे खेलने की उम्र है। इन सब बातों में मत पड़।” मन फिर भी न माना।

जिलाधीश को गाँव और शौचालय निर्माण का निवेदन करते हुए एक पत्र लिखा। पत्र का कोई जवाब नहीं आया। पता नहीं चल रहा था कि मुझे आगे क्या करना चाहिए। पिताजी से पुनः इस बारे में बात की। इस बार उन्होंने बात की गम्भीरता को समझा और आशा की लौ जगायी। उन्होंने कहा,

“अपना हाथ जगन्नाथ”

तो फिर दूसरों के भरोसे क्यों बैठे रहें। पिताजी और मैंने गाँव के लोगों को इकट्ठा किया। शौचालय के बारे में बताया तो रघु दादा और बहुत से लोग भड़क उठे। उन्होंने कहा कि वे अपने घरों में गन्दगी नहीं करेंगे। वे पूजा-पाठ नहीं कर पायेंगे। हमारी पहल बेकार गई। मैंने फिर भी हिम्मत न हारी। हमने लोगों में जागरूकता लाने के लिए कई पोस्टर बनाकर गाँव में लगाए, लेकिन हर प्रयास असफल रहा।

पिताजी से बात की। उनसे घर में एक शौचालय बनवाने को कहा। अनुमति मिलने पर मैं और मेरे दोस्त ईट, मिट्टी, सीमेंट सब लेकर आए। गाँव के मिस्त्री को बुलाया। उसे एक छोटा-सा शौचालय बनाने को कहा। पिताजी की मदद से शहर जाकर कमोड लेकर आए और उसे वहीं लगवा दिया। संयोग की बात है कि एक दिन रघु दादा को दस्तों की शिकायत हो गई। बार-बार बाहर जाने में तकलीफ होने लगी। तब पिताजी उन्हें घर लेकर आये। शौचालय का प्रयोग करवाया। पूरा गाँव शौचालय देखने आया। गाँव के लोगों की सोच बदली और यह बदलाव गाँव में खुशहाली लेकर आया। सबने अपने घरों में शौचालय बनाने की ठान ली और मैंने राहत की साँस लेते हुए सोचा कि आज मेरा मानव जीवन सफल हो गया।

चित्र प्रस्ताव

प्रस्तुत चित्र का सम्बन्ध बाल मजदूरी से है। चित्र में बच्चे ईट भट्टे पर ईट निर्माण का काम कर रहे हैं। एक बच्चा फावड़े से मिट्टी को उठा रहा है। चित्र में लड़के के पीछे ईटें लगी हुई हैं। पीछे और दो बच्चे दिखाई दे रहे हैं, जो इसी काम में व्यस्त हैं।

बाल मजदूरी दुनिया का सबसे बड़ा अभिशाप है। चित्र में काम करते हुए बच्चों को देखकर मन दुखी और विवश हो जाता है कि देशहित के लिए कानून बनाने मात्र से कुछ नहीं होने वाला। इन कानूनों को प्रयोगात्मक रूप से अपनाना होगा।

भारतीय संविधान में बहुत पहले से ही यह कानून बनाया जा चुका है कि चौदह वर्ष से कम उम्र के बच्चों से काम करवाना कानूनी अपराध है, फिर भी छोटे-छोटे बच्चे काम करते हुये आसानी से देखे जा सकते हैं।

सरकार ने गरीब बच्चों के लिए शिक्षा निःशुल्क रखी है, फिर भी निर्धन बच्चों के माता-पिता उन्हें स्कूल नहीं भेजते और किसी न किसी काम पर लगा देते हैं। घरेलू काम जैसे बरतन धोना, कपड़े

धोना, घर की सफाई करना, होटलों में झूठी प्लेटें उठाना, टेबलों की सफाई करना, सुबह-सवेरे अखबार वितरित करना, फैंक्ट्रियों व कारखानों में काम करना आदि।

इन बच्चों के माता-पिता अशिक्षित और गरीब होने के कारण बालश्रम को गलत नहीं समझते हैं। उन्हें लगता है कि बच्चों के कमाने से परिवार चलाने में उन्हें सहायता मिलती है।

खेलने-कूदने और पढ़ने की उम्र में इन मासूम कन्धों पर जब काम का बोझ लाद दिया जाता है, तो मन बड़ा द्रवित हो जाता है। बचपन, जीवन का स्वर्णिम काल होता है और खुशी तथा उत्साह से जीने का अधिकार हर बच्चे को है।

इस अभिशाप को जड़ से उखाड़ने के लिए हमें एक बड़े स्तर पर अभियान चलाना होगा। निर्धन वर्ग के लिए रोजगार के अवसर प्रदान करने होंगे। धनी और सभ्य लोगों को यह कसम लेनी होगी कि वे चौदह वर्ष से कम उम्र के बच्चों से काम नहीं करवाएँगे। लोगों को स्वार्थ को परे रखना होगा। परमार्थ और परोपकार की भावना का विकास करना होगा।

सरकार ही नहीं बल्कि जनता को भी एकजुट होकर काम करना होगा। तभी देश का हर बच्चा शिक्षित होगा, बचपन का आनन्द ले पाएगा। बाल मजदूरी करवाने वालों पर सरकार को कठोर कदम उठाने होंगे और उन्हें कड़ी-से-कड़ी सजा देनी होगी।

“बाल मजदूरी एक अभिशाप है”

बच्चों से काम करवाना पाप है।

इन्हें इनका बचपन लौटाएँ

भविष्य इनका सुनहरा बनाएँ।”

Answer 2.

(i) राजगली

राज नगर,
आगरा।

दिनांक : 26.04.20XX

प्रिय मित्र,

हम सब यहाँ कुशल हैं तुम भी कुशल होंगे, ऐसी ईश्वर से मेरी प्रार्थना है। यह पत्र मैं तुम्हें अपनी खुशियों के पलों में शामिल करने के लिए लिख रहा हूँ। कुछ दिनों पहले मैं अपने परिवार के साथ एक वैज्ञानिक प्रदर्शनी को देखने गया था। प्रदर्शनी मान्यता टेक्नो पार्क में लगी थी।

विज्ञान की तरक्की देखकर आँखें खुली की खुली रह गईं। यह प्रदर्शनी दूसरे शहरों के वैज्ञानिकों ने लगाई थी। इस प्रदर्शनी का मुख्य उद्देश्य छात्रों में विज्ञान एवं प्रौद्योगिकी में अभिरुचि पैदा करने एवं अपनी प्रतिभा को पहचानने का अवसर प्रदान करना था। प्रदर्शनी में चंद्रग्रहण, सूर्यग्रहण, ध्वनि तरंगों का संचरण, सौरमण्डल, सैटेलाइट, रॉकेट का निर्माण, सौर ऊर्जा आदि के बारे में विस्तृत जानकारी मिली। रोबोट और उसके कार्यकलापों को देखकर मन रोमांचित हो उठा। पर्यावरण की सुरक्षा व प्रदूषण की रोकथाम के लिए विविध वैज्ञानिक उपकरणों के आविष्कार सराहनीय थे, क्योंकि मनुष्य के जीवन का आधार प्रकृति व पर्यावरण ही है। बहुत ही ज्ञानवर्धक और प्रेरक प्रदर्शनी थी, आशा करता हूँ अगली बार ऐसे किसी अवसर पर तुम भी साथ रहो।

अब मैं अपनी लेखनी को यहीं विराम देता हूँ। चाचा-चाची को मेरा प्रणाम देना।

तुम्हारा विश्वसनीय,

क.ख.ग.

(ii) प्रेषक

क. ख. ग.

04, राजाजीनगर

आगरा-4।

दिनांक : 26.02.20XX

सेवा में,

नगर निगम अधिकारी/अध्यक्ष

राजाजीनगर नगरपालिका

आगरा 4।

विषय—वर्षाजल संचयन परियोजना हेतु।

महोदय,

मैं क.ख.ग. राजाजीनगर का निवासी हूँ। मैं इस पत्र के माध्यम से आपका ध्यान दिन-प्रतिदिन बढ़ते हुए जल संकट की ओर आकर्षित करना चाहता हूँ।

पर्याप्त वर्षा के बावजूद लोग पानी की एक-एक बूँद के लिये तरसते हैं तथा कई जगह संघर्ष की स्थिति भी पैदा हो जाती है। इसका प्रमुख कारण यह है कि हमने अनमोल वर्षा जल का संचय नहीं किया और वह व्यर्थ में बहकर दूषित जल बन गया। अतः हमारा दायित्व है कि हम वर्षाजल का संरक्षण करें तथा प्राकृतिक जलस्रोतों को प्रदूषण से बचाएँ।

जलसंकट से उबरने के लिये वर्षा जल का संचयन आवश्यक है। अतः आपसे सविनय निवेदन है कि आप वर्षा के जल का संचयन करने के लिए व्यापक स्तर पर एक परियोजना तैयार करें और जल्द-से-जल्द उसे लागू करायें।

धन्यवाद।

भवदीय

क.ख.ग

Answer 3.

(i) राजा कंचनदेव की चिंता का कारण उनके राज्य कंचनगढ़ की गरीबी थी। वहाँ की प्रजा कमजोर थी। धरती भी बंजर थी। राज्य में चारों ओर भुखमरी थी। राजा ने साधु को अपने राज्य के बारे में बताया और कुछ उपाय करने की प्रार्थना की।

(ii) साधु ने राजा को बताया कि कंचनगढ़ के नीचे सोने की खान है। साधु की बात सुनकर राजा ने खुदाई करवाई। वहाँ सोने की खान निकली। उस सोने से राजा ने अपने राज्य में जगह-जगह मुफ्त भोजनालय बनवाए, दवाखाने खुलवाए, चारागाह बनवाए तथा अन्य सुख-सुविधा के साधन भी उपलब्ध करवाए।

(iii) पड़ोसी राजा के आक्रमण करने पर कंचनगढ़ का राजा अपनी प्रजा की बात मान कर उसे सोना दे देता था। सारी सुविधाएँ मिलने के कारण लोग आलसी हो गए थे। इसलिए वे राजा को यह सुझाव देते थे कि थोड़ा-सा सोना पड़ोसी राजा को दे दिया जाए। युद्ध में खून बहाना बेकार है। राजा हर बार अपनी आलसी हो चुकी प्रजा का कहना मान लेता था, अपने विवेक का इस्तेमाल नहीं करता था।

(iv) बिना प्रयास के दाना मिलने के कारण कबूतर आलसी हो गए थे। जब राजा ने दाना डलवाना बन्द कर दिया, तब भी वे कबूतर उसी जगह पर दाने के लिए आते और शिकारी पक्षी द्वारा आसानी से मारे जाते। कबूतरों की ऐसी दशा को देखकर राजा समझ गये कि यही

दशा उनके राज्य के लोगों की है, मुफ्त में अन्न और सुख-सुविधायें उपलब्ध होने की वजह से वे आलसी हो गये हैं। इसी कमजोरी का फायदा पड़ोसी राजा उठा रहा है।

- (v) राजा ने मन्त्री को आदेश दिया कि नगर के सारे मुफ्त भोजनालय बन्द करवा दिए जाएँ। मेहनत करने वाले को ही खाना मिलेगा। राजा ने यह भी कहा कि अब वे पड़ोसी राजा को सोना नहीं देंगे। बल्कि उनसे लड़ाई करेंगे। वे मन्त्री को सेना को मजबूत करने का आदेश देते हैं। आदेश सुनकर मन्त्री बहुत खुश होता है।

Answer 4.

- (i) अपना - पराया देव - दानव
नवीन - प्राचीन सम्मानित - अपमानित
- (ii) इच्छा - आकांक्षा, चाह, आशा
आदेश - निर्देश, आज्ञा, हुक्म
शिक्षक - अध्यापक, गुरु, आचार्य
- (iii) सफेद - सफेदी युवा - यौवन
हिंसक - हिंसा जागना - जागरण
- (iv) कवित्री - कवयित्री अशीरवाद - आशीर्वाद
कृतग्र्य - कृतज्ञ विदूषी - विदुषी
- (v) चंपत होना (भाग जाना) - चोर चोरी करके चंपत हो गया।
डींग हाँकना (बड़ी-बड़ी बातें करना) - डींगें हाँकना सरल था, पर काम करना मुश्किल।
- (vi) (a) प्राचीन काल में लोग पर्णकुटी में रहते थे।
(b) सुमन बीमार थी इसलिए समारोह में नहीं आ सकी।
(c) बच्चा आर्मी को तोड़ने के लिए वृक्ष पर चढ़ गया था।

SECTION 'B'

Answer 5.

- (i) उसके शब्द का प्रयोग 'श्यामू' के लिए किया गया है। उसकी माँ की मृत्यु के कारण वह दुखी था। वह यह कठोर सत्य स्वीकार नहीं कर पा रहा था कि उसकी माँ अब इस दुनिया में नहीं हैं। उसका अबोध बाल मन अपनी माँ को भगवान के घर से वापस बुलाने के लिये हर समय सोच विचार में डूबा रहता और वह दुखी रहता।
- (ii) आसमान में उड़ती हुई पतंग को देखकर श्यामू का हृदय खिल उठा था। उसने सोचा कि पतंग के सहारे वह अपनी काकी को रामजी के यहाँ से नीचे उतार सकता है। उसने अपने पिता से एक पतंग मँगाने को कहा।
- (iii) पिता से कहने पर भी श्यामू को पतंग नहीं मिलती है। पतंग का प्रबन्ध करने के लिए श्यामू अपने पिता विश्वेश्वर के कोट से चवन्नी निकाल लेता है।
उसके इस कार्य को अपराध कहना उचित नहीं होगा, क्योंकि श्यामू एक अबोध बालक है। वह अपनी माँ से बहुत प्यार करता है। रामजी के यहाँ से अपनी काकी को नीचे उतारने के उद्देश्य से वह चोरी करता है। श्यामू को चोरी, अपराध जैसी बातों का अर्थ ही नहीं पता था। अतः श्यामू की चोरी को अपराध कहना अनुचित है।
- (iv) पत्नी की मृत्यु के बाद विश्वेश्वर अन्यमनस्क रहा करते थे। जब उन्हें पता चलता है कि उनके बेटे श्यामू ने उनके कोट की जेब से पैसे चुराए हैं और चोरी के पैसे से पतंग और डोर मँगवायी है, तो वे

अपने क्रोध पर काबू नहीं कर पाते हैं। गुस्से में आकर वे श्यामू के मुँह पर दो तमाचे भी जड़ देते हैं और पतंग को फाड़ देते हैं। कोठरी में पड़ी रस्सी के बारे में जब भोला यह बताता है कि इस रस्सी को पतंग से जोड़कर वे काकी को रामजी के यहाँ से नीचे उतारेंगे, तब विश्वेश्वर हतबुद्धि होकर वहीं खड़े रह जाते हैं। फटी हुई पतंग को उठाकर देखते हैं। पतंग पर चिपके हुए कागज पर 'काकी' लिखा देखकर, वे अपनी भूल पर पश्चाताप करते हैं। सच्चाई जानने के बाद उनका गुस्सा शांत हो जाता है, और उनका मन ग्लानि से भर जाता है।

Answer 6.

- (i) 'उसके चित्रों' से तात्पर्य चित्रा द्वारा गर्ग स्टोर के सामने पेड़ के नीचे मृत पड़ी भिखारिन और उसके अनाथ बच्चों के बने चित्र तथा अन्य चित्रों से भी है जिन्हें चित्रा ने बनाया, भिखारिन के चित्र ने देश-विदेश में बहुत नाम कमाया है। यह चित्र अभी दिल्ली में उसके चित्रों की प्रदर्शनी में लगा हुआ है। जिसका शीर्षक 'अनाथ' रखा है।
- (ii) चित्रा एक धनी पिता की इकलौती बेटी थी। वह अरुणा की पक्की सहेली थी। वे दोनों हॉस्टल में एक ही कमरे में रहती थीं। चित्रा एक महान चित्रकार बनना चाहती है। इसी उद्देश्य से वह विदेश भी जाती है और सफल भी होती है। चित्रा भौतिकवादी व संवेदनहीन है। वह अपने लक्ष्य के प्रति दृढ़ है और कर्मठता से उसे पाने में सफल भी होती है।
- (iii) अरुणा चित्रा की सहेली तथा सहपाठिन है। वह भावुक और संवेदनशील है। समाज सेवा उसके जीवन का लक्ष्य है। जब उसे पता चलता है कि गर्ग स्टोर के सामने पेड़ के नीचे मृत भिखारिन के सूखे शरीर से चिपककर उसके दोनों बच्चे रो रहे हैं, तो वह अत्यन्त भावुक और दुखी हो जाती है। वह तुरंत उन बच्चों को घर लेकर आ जाती है। वह उन दोनों बच्चों को अपना लेती है और उनका पालन-पोषण करती है।
- (iv) चित्रकारिता और समाज सेवा में, मैं समाज सेवा को उपयोगी मानती हूँ। अरुणा यथार्थवाद का परिचय देती है। मानवता मनुष्य का सबसे बड़ा धर्म होता है। अरुणा इस धर्म का पालन करती है और दोनों अनाथ बच्चों को अपने संरक्षण में रखकर माँ की तरह पालन-पोषण करती है। लोगों के दुःख दर्द में सहभागी बनना और उनकी मदद करना ही मनुष्य के जीवन का लक्ष्य होना चाहिए। कुछ बनने की इच्छा रखना गलत नहीं है, क्योंकि व्यक्ति की महत्वाकांक्षा ही उसे सफल और प्रसिद्ध बनाती है। चित्रा महान चित्रकार तो बन जाती है पर उसके हृदय में मानवता व परोपकार को भावनाएँ नहीं हैं।

Answer 7.

- (i) यहाँ पर एक पहाड़ी बालक के विषय में कहा गया है। वह नैनीताल से करीब पंद्रह कोस दूर गाँव का रहने वाला एक गरीब बालक था। जब लेखक ने उसे देखा, उस समय पहाड़ी बालक की स्थिति बड़ी दयनीय थी। उसके तन पर कमीज लटकी हुई थी। वह नंगे पैर और नंगे सिर था। उसके सिर के बाल बड़े-बड़े थे जिनमें धूल भरी हुई थी। वह अपने निकट वर्तमान को लेकर चिंतित था कि क्या उसे आज रात रहने के लिए स्थान व भोजन मिलेगा। इस प्रकार छोटी उम्र में ही वह लड़का बहुत दुखी व अनाथ नजर आ रहा था।
- (ii) पहाड़ी बालक ने अपने माता-पिता के विषय में यह जानकारी दी कि वे गरीब हैं। उसके कई भाई-बहन हैं। घर में खाने-पीने का अभाव था, इसलिए उसका पिता भूखा रहता था। उसकी माँ भूखी

रहती थी और रोती रहती थी। इसलिए वह अपने एक साथी के साथ गाँव छोड़कर नैनीताल भाग आया था।

- (iii) पहाड़ी बालक जिस दुकान पर काम करता था, वहीं सोता और खाता था, उसके मालिक ने उसे नौकरी से निकाल दिया था। उसका साथी भी मालिक के मारने पर मर जाता है। इस समय उसके रहने, खाने-पीने व पहनने का कोई भी ठिकाना नहीं था। उस ठंडी रात में उसकी स्थिति बड़ी दयनीय थी।

उसकी समस्या का हल नहीं हो पाता है। लेखक और उनका मित्र उसे वकील साहब के पास नौकरी की आस में लेकर आते हैं पर वकील साहब यह कहकर मना कर देते हैं कि वे पहाड़ी बालकों पर विश्वास नहीं करते। वे पहाड़ी बालक को शैतान और चोर समझते हैं। विवश होकर लेखक पहाड़ी बालक की मदद नहीं कर पाते हैं। इस प्रकार दुनिया की क्रूरता व बेरुखी का शिकार वह बच्चा सर्दी से ठिठुर-ठिठुर कर मर गया।

- (iv) इस कहानी में समाज के तीन वर्गों का रेखाचित्र प्रस्तुत किया गया है। समाज का निम्न वर्ग जो अपनी मूलभूत आवश्यकताओं की पूर्ति करने में भी असमर्थ है।

दूसरी ओर है उच्च वर्ग—जो धनी तथा सम्पन्न है, परन्तु वह गरीबों के प्रति संवेदनशीलता नहीं रखता बल्कि उनका शोषण करता है। उच्च और निम्न वर्ग के बीच में मध्य वर्ग है जो आत्मकेन्द्रित है, वह गरीबों के प्रति दया भावना तो रखता है परन्तु उसके लिये कोई त्याग नहीं करना चाहता या नहीं कर पाता।

यहाँ लेखक कहना चाहते हैं कि गरीब बालक की स्थिति का जिम्मेदार समाज ही है और समाज का ही कर्तव्य है कि उनकी सहायता की जाये, और गरीबों के प्रति संवेदनशील बना जाये।

Answer 8.

- (i) प्रस्तुत पद्य में बाल कृष्ण अपनी माता से ज़िद कर रहे हैं। वे चाँद को खिलौना समझ उसे प्राप्त करना चाहते हैं। वे अपनी माता से चन्द्रमा रूपी खिलौना ला देने को कहते हैं।
- (ii) बाल कृष्ण की माता यशोदा हैं। श्रीकृष्ण के बाल हठ में वह बहुत प्रसन्न हैं। बालक की अबोधता व मासूमियत का आनन्द ले रही हैं। वह अपने पुत्र के बालपन, हठ और दर्शन का सुख प्राप्त कर रही हैं। वह उस सुख को निरन्तर प्राप्त करना चाहती हैं। उनका हृदय आनंदित व प्रफुल्लित है।
- (iii) चाँद रूपी खिलौना न मिलने की स्थिति में बाल कृष्ण ने अपनी माँ को यह धमकियाँ दीं कि वे अपनी चोटी नहीं गुंथवाएँगे, दूध नहीं पियेंगे। वे यह भी कहते हैं कि वे मोतियों की माला नहीं पहनेंगे और कंठ का आभूषण भी नहीं पहनेंगे। वे धरती पर लोट जाएँगे और यशोदा की गोद में भी नहीं आयेंगे। वे नन्द बाबा के बेटे कहलाएँगे, यशोदा माँ के नहीं। इस प्रकार जब कृष्ण माँ को धमकियाँ देते हैं तो वे उन्हें बहलाने लगती हैं।
- (iv) रूटे हुए कृष्ण को बहलाने के लिए यशोदा उनके कान में धीरे से कहती हैं कि यह बात दाऊ से मत कहना कि मैं तेरे लिए चाँद से भी अधिक सुन्दर दुल्हनियाँ ब्याह कर लाऊँगी। यह बात सुनकर कृष्ण प्रसन्न हो जाते हैं और कहते हैं कि वे तुरन्त विवाह करने जायेंगे, उनके सभी सखा बराती होंगे और नये मंगल गीत गाये जायेंगे। सूरदास श्रीकृष्ण के अनन्य भक्त थे। श्री कृष्ण के प्रति अपनी भक्ति वे कृष्ण की बाल लीलाओं के वर्णन द्वारा करते हैं।

Answer 9.

- (i) 'भव' शब्द का अर्थ है 'संसार'। कवि के अनुसार जब तक प्रत्येक मनुष्य को न्यायपूर्ण सुख नहीं मिलेगा तब तक इस संसार में शांति नहीं मिलेगी। धरती पर सुख-चैन तभी स्थापित होगा जब ईश्वर प्रदत्त सुख-सुविधायें सभी मनुष्यों को समान रूप से प्राप्त होंगी। कोई किसी का अधिकार छीनने का प्रयास नहीं करेगा।

- (ii) शब्दों का अर्थ—

| | | |
|-----------|---|---|
| न्यायोचित | — | न्याय संगत नियम के अनुसार, न्याय के अनुसार उचित |
| सम | — | समान, बराबर |
| सुलभ | — | सरल, आसान |
| कोलाहल | — | शोरगुल, अशांति |

- (iii) "शमित न होगा कोलाहल संघर्ष नहीं कम होगा।" पंक्ति का भावार्थ है कि जब तक मनुष्य के जीवन में समता का सुख नहीं होगा, तब तक मनुष्य के मन में असन्तोष होगा और अशांति होगी। जब तक समानता की दृष्टि से सबको नहीं देखा जाएगा, तब तक शांति और समता के लिए संघर्ष जारी रहेगा। कवि ने स्वार्थरहित, समतापूर्ण समाज की कल्पना की है।

- (iv) उपर्युक्त पंक्तियाँ दिनकर जी की प्रसिद्ध रचना 'कुरुक्षेत्र' से ली गई हैं। ये पंक्तियाँ भीष्म पितामह युधिष्ठिर को आत्मग्लानि तथा अपराधबोध होने के कारण समझाते हुए कह रहे हैं। कवि की यह कल्पना है कि उसका देश, उसकी मातृभूमि स्वर्ग के समान सुन्दर हो जाए। यह तभी होगा जब हमारे देश से भाषा, धर्म, रंग, जाति आदि के नाम पर कोई भेदभाव नहीं होगा। सभी देशवासियों को न्यायोचित सुख मिले। कवि को यह विश्वास है कि समता और प्रेम के आधार पर इस धरती को स्वर्ग बनाया जा सकता है।

Answer 10.

- (i) 'वह जन्मभूमि मेरी' कविता देश-प्रेम की भावना का परिचय कराती है। इस कविता में मातृभूमि की विशेषताओं का गुणगान किया गया है। भारत की भूमि, वह पवित्र भूमि है, जहाँ राम, कृष्ण, बुद्ध जैसे महापुरुषों ने जन्म लिया है।
- (ii) महाभारत के युद्ध के समय अर्जुन मोहवश युद्ध नहीं करना चाहते थे। कुरुक्षेत्र के मैदान में श्रीकृष्ण ने अर्जुन को उपदेश दिया कि कर्मठता मनुष्य का कर्तव्य होना चाहिए। निष्काम कर्म करना चाहिए, फल की अपेक्षा नहीं करनी चाहिए। युद्धभूमि में दिया गया यह उपदेश भगवद्गीता में संकलित है और युगों-युगों तक सबका मार्गदर्शन करता रहेगा। इसलिए कवि ने भारत को युद्धभूमि कहा। इसे बुद्धभूमि भी कहा है, क्योंकि भगवान् बुद्ध ने यहाँ जन्म लिया और संसार को दया-प्रेम का सन्देश दिया और अहिंसा का मार्ग दिखाया। बुद्ध शरण गच्छामि की गूँज सारे विश्व को सुनाई दे रही है।
- (iii) अपने देश के भौगोलिक परिवेश का वर्णन करते हुए कवि का कहना है कि भारत की उत्तरी सीमा में खड़ा हिमालय पर्वत आसमान को चूमता है। भारतभूमि की पहाड़ियों से अनेक सुन्दर झरने झरते हैं। गंगा, यमुना जैसी पवित्र नदियाँ मातृभूमि की सुन्दरता को बढ़ाती हैं। भारत की दक्षिणी सीमा में समुद्र इसकी शोभा बढ़ाता है। घाटियों की हरियाली मनमोहक है। यहाँ पर सुगन्धित पवन बहती है, जो तन-मन को प्रसन्नता से भर देती है। जन्मभूमि की प्राकृतिक विशेषतायें अत्यन्त ही आकर्षक और मनमोहक हैं। इस प्रकार भारत भूमि पर 'सुजलाम सुफलाम, मलयज शीतलाम' का सौन्दर्य पूर्ण नज़ारा दिखाई देता है।

- (iv) प्रस्तुत पद्यांश में कवि ने भारत को राम-सीता, कृष्ण और गौतम बुद्ध आदि महापुरुषों की जन्मभूमि कहा है। कवि ने अपने देश के भौगोलिक, प्राकृतिक एवम् आध्यात्मिक रूपों का वर्णन किया है यह कविता देश प्रेम की भावना को दर्शाती है। कवि अपने देश के गौरव का गान करते हुए हिमालय, सागर, नदियाँ, झरने तथा अमराइयों की प्रशंसा करते हैं। अपनी मातृभूमि का गौरवगान करते हुए कवि ने इसे पुण्यभूमि, स्वर्णभूमि, धर्मभूमि, कर्मभूमि, युद्धभूमि और बुद्धभूमि जैसे विशेषणों से सम्बोधित किया है। प्रस्तुत कविता लेखन का मुख्य भाव देश भक्ति को जागृत करना तथा बढ़ावा देना है। भारत के प्राकृतिक सौन्दर्य तथा गौरवशाली अतीत के दर्शन कराना है। कवि यह भी चाहते हैं कि आज की युवा पीढ़ी पूर्वजों द्वारा किए गए सत्कर्मों से परिचित हो, देशवासी कृष्ण तथा गौतम बुद्ध द्वारा दिखाए गए मार्ग पर चलें।

Answer 11.

- (i) उपर्युक्त कथन की वक्ता दयाराम जी की बहन और मीनू की बुआ है। बुआजी पुराने विचारों की थीं। वह लड़कियों की शिक्षा में विश्वास नहीं रखती थीं। उनके अनुसार लड़कियों का विवाह कर उन्हें ससुराल भेजना ही उचित था। वह स्पष्ट वक्ता और कटु भाषी महिला थीं।
- (ii) वक्ता ने कहा कि मीनू यह रस्म नहीं कर सकती, क्योंकि मीनू शादीशुदा नहीं थी। छोटी बहन की शादी में, एक रस्म के अनुसार बड़ी बहन को छोटी बहन की आरती उतारनी होती है। आशा की आरती, अविवाहित होने के कारण मीनू नहीं कर सकती थी।
- (iii) बुआजी की बात सुनकर मीनू और उसकी माँ का चेहरा मुरझा जाता है। वह उदास हो जाती हैं। मीनू के मुरझाये चेहरे को देखकर माँ उसकी मनः स्थिति समझ जाती है और बुआजी से कहती है कि आजकल इन सब बातों को कोई नहीं मानता। बड़ी बहन होने के नाते मीनू सारी रस्में करेगी। ऐसा कहते हुए माँ पूजा का थाल सजाकर मीनू को देती है और उससे आरती उतारने की रस्म पूरी करवाती है।
- (iv) हाँ यह सत्य है कि एक अविवाहित स्त्री को समाज में उचित सम्मान नहीं मिलता। उपन्यास में यह प्रमाण प्रत्यक्ष है। आशा की शादी की रस्में करने के लिए मीनू को मना किया जाता है, क्योंकि वह अविवाहित थी। आशा के विवाह में आई महिलाएँ भी मीनू के अविवाहित होने पर तीखे कटाक्ष करती हैं कि आजकल की लड़कियों के बड़े नखरे होते हैं, पढ़ाई के चक्कर में कौन जवान बेटियों को घर में रखता है? बुआ भी रस्में करने के लिए इसलिए मना करती हैं क्योंकि वह अविवाहित है। इस प्रकार आज भी समाज में लड़कियों की शिक्षा को नहीं बल्कि उनके विवाह को अधिक महत्व दिया जाता है।

Answer 12.

- (i) उपन्यास का प्रमुख पात्र 'अमित' मायाराम जी का पुत्र है। वह दूसरों का सम्मान करना जानता है। वह दहेज विरोधी व संस्कारी है। अमित मीनू के रंग-रूप, व्यवहार तथा सादगी से प्रभावित है। अंत में अमित और मीनू का विवाह हो जाता है।
- (ii) अमित के घर में विशेष चहल-पहल होने का कारण यह था कि अमित, उसके माता-पिता व उसकी बहन मधु, अमित के लिए लड़की देखने धनीमल जी के घर जा रहे थे। इस अवसर पर अमित के चेहरे पर उदासी थी। इस कल्पना मात्र से ही वह उदास था कि उसके माता-पिता उसे एक धनी घर की लड़की के हाथों बेचना चाहते थे।
- (iii) मायाराम जी को स्वर्ग की अनुभूति धनीमल जी के घर पर होती है। धनीमल जी घर जाने के लिए कार भी वे ही भेजते हैं। कार जैसे ही

धनीमल जी के की कोठी के बाहर रुकती है और डाइवर कार का दरवाजा खोलता है, तो मायाराम जी को लगता है जैसे वे कोई बड़े अफसर बन गए हों। आलीशान कोठी के अन्दर जाते ही उन्हें लगा मानो स्वर्ग में आ गए हो। कोठी के बाहर लॉन में घास मखमल के समान बिछी थी। लॉन में बेंत की सुन्दर रंग-बिरंगी कुर्सियाँ पड़ी थी। धनीमल जी के घर पर उनका विशेष स्वागत हुआ। घर के सभी नौकर खाकी वर्दी में थे। अनेक प्रकार के मिष्ठान, फल व मेवा उनके सामने रखे गए। मायारामजी को मध्यम वर्गीय परिवार के होने के कारण धनीमल जी की आलीशान कोठी में स्वर्ग की अनुभूति होती है।

- (iv) अमित व सरिता का वार्तालाप एकांत में शुरू हुआ। अमित ने सरिता से उसकी रुचि, शिक्षा, घरेलू काम-काज आदि के बारे में पूछा। सरिता ने अमित के प्रश्नों के उत्तर में कहा कि उसकी रुचि पेंटिंग व कार डाइविंग में विशेष है। उसने यह भी बताया कि वह बीए द्वितीय श्रेणी में पास है। घरेलू काम-काज उसे नहीं आता है। घर का सारा काम नौकर-चाकर ही करते हैं। शादी के बाद भी वह सारा काम नौकर द्वारा ही कराएगी। सरिता की बातों को सुनकर अमित चकित रह जाता है।

Answer 13.

- (i) मनोहर राजो का चचेरा भाई था। राजो, मीनू के यहाँ काम करती थी और उसके साथ मेरठ भी गई थी। मनोहर बचपन में अक्सर राजो के साथ उसके घर आता था। अब वह अपंग हो गया था। उसके पास रोजी-रोटी का कोई साधन भी नहीं था। वह मीनू के घर काम की तलाश में आया था। उसने सोचा कि विवाह वाला घर है तो उसके योग्य कोई-न-कोई काम निकल ही आएगा।
- (ii) मनोहर को छोटी उम्र में ही फैंक्ट्री में नौकरी करनी पड़ी थी। एक दिन काम करते-करते उसका पैर मशीन में आ जाता है। पैर के साथ उसके सीधे हाथ की दो अंगुलियाँ भी कट जाती हैं। इस प्रकार वह अपंग हो गया था।
- (iii) मीनू ने मन ही मन यह निश्चय किया कि वह मनोहर की सहायता अवश्य करेगी। विवाह के फालतू खर्च व पंडाल की सजावट से कुछ रुपये बचाकर वह मनोहर की सहायता करने का संकल्प लेती है। पाँच हजार रुपये बचाकर वह मनोहर को उसके घर के सामने ही पान की दुकान खुलवा देती है। इस तरह मीनू की दया भावना से अपंग मनोहर की जिन्दगी सुधर जाती है।
- (iv) मीनू के इस कार्य से हमें यह प्रेरणा मिलती है कि हमें शादी-ब्याह, जन्मदिन आदि उत्सवों में फिजूलखर्च न करके, उन पैसों से किसी अपंग या जरूरतमंद की सहायता करनी चाहिए। यदि प्रत्येक सम्पन्न व्यक्ति अपनी जिन्दगी में किसी एक अपंग की सहायता कर उसे कोई रोजगार करा दे तो हमारे देश में अपंगों की बेरोजगारी की समस्या दूर हो जायेगी।
हाँ, मैंने भी अपनी पॉकेट मनी से पैसे बचाकर एक गरीब बच्चे को पढ़ने के लिए किताबें लाकर दीं। ऐसा करके मुझे बहुत अच्छा लगा। मीनू का हर गुण हमें अपने जीवन में अपनाना चाहिए।

Answer 14.

- (i) वक्ता जीवनलाल की पत्नी राजेश्वरी और श्रोता जीवनलाल हैं। जीवनलाल की बेटी को दहेज पूरा नहीं देने के कारण उसके ससुराल वाले विदा नहीं करते हैं। जीवनलाल बहुत अपमानित महसूस करते हैं। तब राजेश्वरी कहती है कि तुम भी तो अपनी बहू को दहेज कम देने के कारण उसे मायके नहीं भेज रहे हो। अब वैसा ही व्यवहार तुम्हारी बेटी के ससुराल वाले तुम्हारे साथ कर रहे हैं। अब तो तुम्हारी आँखें खुल जानी चाहिए।

- (ii) “अब भी आँखें नहीं खुली” से वक्ता राजेश्वरी का यह अभिप्राय है कि जीवनलाल ने जैसा व्यवहार उसकी बहू के साथ किया, ठीक उसी तरह का व्यवहार बेटी के ससुराल वालों ने उसके साथ किया है। क्या अब भी उसे गलती का अहसास नहीं हुआ है? दहेज का लालच न करके उसे बेटी और बहू दोनों को समान समझना चाहिए और दोनों के साथ समान व्यवहार करना चाहिए।
- (iii) एकांकी के अंत में श्रोता जीवनलाल का हृदय परिवर्तन हो जाता है, पहले वह उसकी बहू के मायके वालों से दहेज की माँग करता है पर बेटी के ससुराल वालों द्वारा दहेज माँगने व बेटी को विदा न करने पर उसकी आँखें खुल जाती हैं। वह आत्मचिंतन करने को मजबूर हो जाता है। उसके मन से बहू और बेटी में अन्तर मानने की भावना समाप्त हो जाती है और वह बिना कुछ लिए ही खुशी-खुशी अपनी बहू को मायके भेजने का फैसला लेता है।
- (iv) इस एकांकी से हमें यह शिक्षा मिलती है कि हमें बहू और बेटी में कोई फर्क नहीं करना चाहिए। बहू की भावनाओं का भी सम्मान करना चाहिए। इस एकांकी में दहेजरूपी सामाजिक कुप्रथा पर चोट की गई है और यह बताया गया है कि हमें दहेज न देना चाहिए और न लेना चाहिए। जब प्रमोद अपनी बहन कमला की विदा के लिए आता है, तो जीवनलाल उसे अपमानित करते हैं और कहते हैं कि उन्हें दहेज के रूप में जब तक पाँच हजार रुपये नहीं मिलेंगे तब तक उसकी बहन विदा नहीं होगी, किन्तु जब उन्हीं की बेटी गौरी के साथ उसके ससुराल वालों द्वारा इसी तरह का व्यवहार किया जाता है, तब जीवनलाल का हृदय परिवर्तन होता है और वे अपनी बहू कमला की विदाई सहर्ष करते हैं। एकांकी में यह भी समझाया गया है कि बहू और बेटी में अंतर नहीं करना चाहिए। बहू के प्रति प्रेम, दया तथा सहानुभूति रखनी चाहिए और उसके साथ न्यायपूर्ण व्यवहार करना चाहिए। जैसा बोएंगे, वैसा काटेंगे। यदि हम आज किसी की बेटी को सताएँ तो कल हमारी बेटी भी दुखी रहेगी।

Answer 15.

- (i) प्रस्तुत कथन चारणी ने मेवाड़ के शासक महाराणा लाखा से कहा। वह गीत गाते-गाते प्रवेश करती है। वह सम्पूर्ण राजस्थान को एकता के सूत्र में बाँधने की प्रार्थना करती है। वह महाराज से हाड़ा वीरों के द्वारा की गई गलती को भूल जाने का निवेदन करती है और आपस में स्नेह का सम्बन्ध बनाए रखने को कहती है।
- (ii) मेवाड़ को विपत्ति के दिनों में बूँदी के शासक व उसके वीरों ने सहायता दी है। चारणी देश की स्वाधीनता को महत्व देती है और कहती है कि इस वक्त सम्पूर्ण राजस्थान को एकता के सूत्र में बाँधने की आवश्यकता है। वह महाराणा लाखा को याद दिलाती है क्योंकि वह राजपूतों में दुश्मनी पैदा नहीं होने देना चाहती। वह कहती है कि महाराज लाखा के विवेक पर सबको भरोसा है। वे हाड़ाओं द्वारा की गई धृष्टता को भूल जाएँ।
- (iii) बूँदी के राव हेमू द्वारा मेवाड़ के साथ हाथ मिलाने के प्रस्ताव को इंकार और धोखे से युद्ध में महाराणा लाखा को पराजित कर दिया गया था। एक सच्चे राजपूत होने के कारण महाराणा लाखा गुस्से में आकर यह प्रतिज्ञा लेते हैं कि जब तक वे बूँदी के किले पर मेवाड़ का झंडा नहीं फहराएँ, तब तक अन्न-जल ग्रहण नहीं करेंगे। तब उनकी भीषण प्रतिज्ञा की पूर्ति हेतु चारणी बूँदी का नकली दुर्ग बनाकर, उसे महाराणा स्वयं ध्वस्त कर अपने अपमान का बदला लेकर प्रण पूरा करने का सुझाव देती है। उसका यह सुझाव उचित है क्योंकि ऐसा करने से बूँदी का असली दुर्ग सुरक्षित रहेगा। किसी के प्राणों की हानि नहीं होगी और दोनों राज्यों में प्रेम और सौहार्द भी बना रहेगा।

- (iv) ‘मातृभूमि का मान’ देश भक्ति से परिपूर्ण ऐतिहासिक एकांकी है। प्रस्तुत एकांकी का शीर्षक मातृभूमि का मान रोचक तथा शिक्षाप्रद है। इसमें राजपूतों का अपनी मातृभूमि के लिए प्रेम तथा भक्ति भाव दर्शाया गया है। वे उसकी रक्षा के लिए अपना तन-मन-धन, सब कुछ न्यौछावर कर देते थे। महाराणा लाखा अपनी मातृभूमि का मान रखने के लिए बूँदी को हराकर अपने आधीन करना चाहते थे ताकि अपने मस्तक पर लगे हार के कलंक को धो डालें। बूँदी के राव हेमू भी अपनी मातृभूमि से बहुत प्रेम करते थे इसलिए उन्होंने महाराणा लाखा का प्रस्ताव ठुकरा दिया था। वे विदेशी अथवा देशी किसी भी शक्ति की अधीनता स्वीकार नहीं करते। उनका मानना था कि बूँदी एक स्वतंत्र राज्य है। वह स्वतंत्र रहकर महाराणाओं का आदर कर सकता है। इस प्रकार इस एकांकी का शीर्षक अपने उद्देश्य की पूर्ति करता है तथा उपयुक्त प्रतीत होता है।

Answer 16.

- (i) प्रस्तुत कथन के वक्ता दादा मूलराज हैं और श्रोता कर्मचन्द हैं। दादाजी कहानी के मूल पात्र हैं। वे एक धनी तथा प्रतिष्ठित व्यक्ति हैं। उनकी आयु 72 वर्ष है तथा वे शरीर से हृष्ट-पुष्ट तथा स्वस्थ हैं। वे संयुक्त परिवार के समर्थक हैं। दादाजी समझदार और अनुशासित हैं। उनके कुशल नेतृत्व के कारण ही उनका परिवार प्रगति पथ पर निरन्तर बढ़ता गया और प्यार और एकता के सूत्र में बँधा हुआ था।
- (ii) श्रोता कर्मचन्द दादाजी को बताता है कि छोटी बहू परिवार में खुश नहीं है, वह और परेश शायद अलग होना चाहते हैं। घमण्ड के कारण छोटी बहू मायके के घराने को बड़ा समझती है और इस घर को घृणा की दृष्टि से देखती है। छोटी बहू बेला को मलमल का थान और रजाई भी पसन्द नहीं आयी।
- (iii) वक्ता दादाजी मूलराज अनुभवी, होशियार और समझदार व्यक्ति थे। जब उन्हें छोटी बहू बेला के बारे में पता चलता है तो वे उसके मन की घृणा को मिटाने के लिए स्नेह देना चाहते थे। उनका विचार था कि यदि घृणा के बदले में स्नेह दिया जाए, तो घृणा अपने आप समाप्त हो जायेगी। दादा मूलराज बेला के अतिरिक्त घर के सभी सदस्यों को बुलाकर कहते हैं कि बेला बड़े घर की बेटी है। यहाँ उसका व्यक्तित्व दबकर रह गया है। व्यक्ति उम्र और दर्जे से नहीं बल्कि बुद्धि और योग्यता से बड़ा होता है। वे सभी सदस्यों को कहते हैं कि सभी बेला का आदर सत्कार करें, उसका कहना मानें, उससे परामर्श लें और घर का काम न करवाकर पढ़ने-लिखने का अवसर दें। कोई उसका मजाक न उड़ाए। सभी सदस्यों ने दादाजी के कहे अनुसार ही बेला के साथ व्यवहार किया। दादाजी अपनी इस योजना में सफल हुए। अन्त में बेला को अपनी भूल का अहसास होता है और वह ससुराल वालों के साथ घुल-मिल जाती है।
- (iv) प्रस्तुत एकांकी “सूखी डाली” संयुक्त परिवार की महत्ता को बताने वाली एकांकी है। उस संयुक्त परिवार की एकता को बनाए रखने और सभी के साथ प्रेम एवं आदर का व्यवहार करने की महत्ता को बताना ही एकांकी का मुख्य उद्देश्य है। एकांकीकार ने मूलराज के परिवार का उदाहरण देकर यह बताया है कि साथ रहने में सुख है और घर के बड़े नहीं चाहते कि घर के सदस्य अलग हो जाएँ। दादाजी अपनी समझदारी से बेला को परिवार का हिस्सा बनाने में कामयाब हो जाते हैं तथा परिवार की एकता को छिन्न-भिन्न हो जाने से बचा लेते हैं।



QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिंदी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- 'परोपकार की भावना लोक-कल्याण से पूर्ण होती है।' हमें भी परोपकार से भरा जीवन ही जीना चाहिए। विषय को स्पष्ट करते हुए अपने विचार लिखिए।
- "आजकल देश में आवासीय विद्यालयों (Boarding Schools) की बाढ़ सी आ गई है। आवासीय विद्यालयों की छात्रों के जीवन में क्या उपयोगिता हो सकती है?"—इस प्रकार के विद्यालयों की अच्छाइयों और बुराइयों के बारे में बताते हुए वर्तमान में इनकी आवश्यकता पर अपने विचार लिखिए।
- संयुक्त परिवार के किसी ऐसे उत्सव के आनंद का विस्तार से वर्णन कीजिए, जहाँ आपके परिवार के बच्चे-बुजुर्ग सभी उपस्थित थे।
- एक ऐसी मौलिक कहानी लिखिए जिसके अंत में यह वाक्य लिखा गया हो—'अंततः मैं अपनी योजना में सफल हो सका/हो सकी।'।
- नीचे दिए गए चित्र को ध्यान से देखिए और चित्र को आधार बनाकर उसका परिचय देते हुए कोई लेख, घटना अथवा कहानी लिखिए, जिसका सीधा व स्पष्ट संबंध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below : [7]

निम्नलिखित में से किसी एक विषय पर हिंदी में लगभग 120 शब्दों में पत्र लिखिए :

- आप अपने विद्यालय के 'सफाई अभियान दल' के नेता हैं। एक योजना के अंतर्गत आप छात्रों के एक दल को किसी इलाके में सफाई के प्रति जागरूक करने हेतु ले जाना चाहते हैं। अपने विद्यालय के प्रधानाचार्य/प्रधानाचार्या जी को इसके लिए स्वीकृति हेतु पत्र लिखिए।
- पिछले महीने कुछ प्रयासों द्वारा आपके विद्यालय के छात्रों ने कुछ धनराशि एकत्रित करके मूक-बधिर (deaf and dumb) विद्यालय के विद्यार्थियों की सहायता की थी। इसका वर्णन करते हुए अपने मित्र को एक पत्र लिखिए और बताइए कि हमें समाज के विकलांग लोगों के प्रति कैसा व्यवहार रखना चाहिए व उनकी सहायता के लिए किस प्रकार के प्रयास करने चाहिए।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे गए प्रश्नों के उत्तर हिंदी में लिखिए। उत्तर यथासंभव आपके अपने शब्दों में होने चाहिए :

सूर्य अस्त हो रहा था। पक्षी चहचहाते हुए अपने नीड़ की ओर जा रहे थे। गाँव की कुछ स्त्रियाँ अपने घड़े लेकर कुएँ पर जा पहुँचीं। पानी भरकर कुछ स्त्रियाँ तो अपने घरों को लौट गईं, परंतु चार स्त्रियाँ कुएँ की पक्की जगत पर ही बैठकर आपस में बातचीत करने लगीं। तरह-तरह की बातचीत करते-करते बात बेटों पर जा पहुँची। उनमें से एक की उम्र सबसे बड़ी लग रही थी। वह कहने लगी—“भगवान सबको मेरे जैसा ही बेटा दे। वह लाखों में एक है। उसका कंठ बहुत मधुर है। उसके गीत को सुनकर कोयल और मैना भी चुप हो जाती हैं। सच में मेरा बेटा तो अनमोल हीरा है।”

उसकी बात सुनकर दूसरी अपने बेटे की प्रशंसा करते हुए बोली—“बहन मैं तो समझती हूँ कि मेरे बेटे की बराबरी कोई नहीं कर सकता। वह बहुत ही शक्तिशाली और बहादुर है। वह बड़े-बड़े पहलवानों को भी पछाड़ देता है। वह आधुनिक युग का भीम है। मैं तो भगवान से कहती हूँ कि वह मेरे जैसा बेटा सबको दे।”

दोनों स्त्रियों की बात सुनकर तीसरी भला क्यों चुप रहती? वह भी अपने को रोक न सकी। वह बोल उठी—“मेरा बेटा साक्षात् बृहस्पति का अवतार है। वह जो कुछ पढ़ता है, एकदम याद कर लेता है। ऐसा लगता है बहन, मानो उसके कंठ में सरस्वती का वास हो।”

तीनों की बात सुनकर चौथी स्त्री चुपचाप बैठी रही। उसका भी एक बेटा था, परंतु उसने अपने बेटे के बारे में कुछ नहीं कहा। जब पहली स्त्री ने उसे टोकते हुए पूछा कि उसके बेटे में क्या गुण है, तब चौथी स्त्री ने सहज भाव से कहा—“मेरा बेटा न गंधर्व—सा गायक है, न भीम—सा पहलवान और न ही बृहस्पति—सा बुद्धिमान।” यह कहकर वह शांत बैठ गई। कुछ देर बाद जब वे घड़े सिर पर रखकर लौटने लगीं, तभी किसी के गीत का मधुर स्वर सुनाई पड़ा, गीत सुनकर सभी स्त्रियाँ ठिठक गईं। पहली स्त्री शीघ्र ही बोल उठी—“मेरा हीरा गा रहा है। तुम लोगों ने सुना, उसका कंठ कितना मधुर है।” तीनों स्त्रियाँ बड़े ध्यान से उसे देखने लगीं। वह गीता गाता हुआ उसी रास्ते से निकल गया। उसने अपनी माँ की तरफ ध्यान नहीं दिया।

थोड़ी देर बाद दूसरी का बेटा दिखाई दिया। दूसरी स्त्री ने बड़े गर्व से कहा, “देखो मेरा बलवान बेटा आ रहा है। वह बातें कर ही रही थीं कि उसका बेटा भी उसकी ओर ध्यान दिए बगैर निकल गया।” तभी तीसरी स्त्री का बेटा उधर से संस्कृत के श्लोकों का पाठ करता हुआ निकला। तीसरी ने बड़े गद्गद स्वर में कहा, “देखो, मेरे बेटे के कंठ में सरस्वती का वास है।” वह भी माँ की ओर देखे बिना आगे बढ़ गया।

वह अभी थोड़ी दूर गया होगा कि चौथी स्त्री का बेटा भी अचानक उधर से आ निकला। वह देखने में बहुत सीधा—सादा और सरल प्रकृति का लग रहा था। उसे देखकर चौथी स्त्री ने कहा, “बहन, यही मेरा बेटा है।” तभी उसका बेटा पास आ पहुँचा। अपनी माँ को देखकर रुक गया और बोला, “माँ लाओ मैं तुम्हारा घड़ा पहुँचा दूँ।” माँ ने मना किया, फिर भी उसने माँ के सिर से पानी का घड़ा उतारकर अपने सिर पर रख लिया और घर की ओर चल पड़ा।

तीनों स्त्रियाँ बड़े ही आश्चर्य से देखती रहीं। एक वृद्ध महिला बहुत देर से उनकी बातें सुन रही थी। वह उनके पास आकर बोली, “देखती क्या हो? यही सच्चा हीरा है।”

- (i) पहली तथा दूसरी स्त्री ने अपने-अपने बेटे के विषय में क्या कहा? [2]
- (ii) तीसरी स्त्री ने अपने बेटे को ‘बृहस्पति का अवतार’ क्यों कहा? [2]
- (iii) पहली स्त्री द्वारा पूछे जाने पर चौथी स्त्री ने क्या कहा? [2]
- (iv) चौथी स्त्री के बेटे ने अपनी माँ के साथ कैसा व्यवहार किया, यह देखकर तीनों स्त्रियों को कैसा लगा? [2]
- (v) बच्चों को अपने माता-पिता के साथ कैसा व्यवहार करना चाहिए? समझाइए। [2]

Question 4.

Answer the following according to the instructions given :

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- (i) निम्नलिखित शब्दों में से दो शब्दों के विलोम लिखिए— [1]
कीर्ति, निर्मल, विजय, निर्दोष।
- (ii) निम्नलिखित शब्दों में से किसी एक शब्द के दो पर्यायवाची शब्द लिखिए— [1]
धनवान, किनारा, दूध।

- (iii) निम्नलिखित शब्दों से विशेषण बनाइए— [1]
अपेक्षा, गुण
- (iv) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के शुद्ध रूप लिखिए— [1]
प्रदर्शनी, लच्छमी, अपरीचीत।
- (iv) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए— [1]
आसमान से बातें करना, उड़ती चिड़िया पहचानना।
- (vi) कोष्ठक में दिए गए वाक्यों में निर्देशानुसार परिवर्तन कीजिए— [1]
- (a) मोहन और रमेश सच्चे मित्र थे। [1]
(‘मित्रता’ शब्द का प्रयोग कीजिए।)
- (b) मुझसे कोई भी बात कहने में संकोच न करें। [1]
(रेखांकित के लिए एक शब्द का प्रयोग करते हुए वाक्य को पुनः लिखिए।)
- (c) शिक्षक ने अपने शिष्य को आदेश दिया। [1]
(वचन बदलिए)

SECTION 'B' (40 Marks)

Attempt four questions from this section.

You must answer at least **one** question from each of the **two** books you have studied and any two other questions.

साहित्य सागर—संक्षिप्त कहानियाँ (Sahitya Sagar—Short Stories)

Question 5.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

आनंदी की त्योंरी चढ़ गई। झुँझलाहट के मारे बदन में ज्वाला—सी दहक उठी। बोली, “जिसने तुमसे यह आग लगाई है, उसे पाऊँ तो मुँह झुलस दूँ।”

[‘बड़े घर की बेटी’ —प्रेमचंद]

(Bade Ghar ki Beti—Premchand)

- (i) आनंदी की त्योंरी क्यों चढ़ी हुई थी? वह किसका इंतजार कर रही थी? [2]
- (ii) श्रीकंठ सिंह ने आनंदी से क्या जानना चाहा? [2]
- (iii) इससे पहले लालबिहारी और बेनीमाधव सिंह श्री कंठ सिंह से क्या कह चुके थे? [3]
- (iv) आनंदी से घटना का हाल जानकर श्रीकंठ सिंह को कैसा लगा? उन्होंने अपने पिता से क्या कहा? [3]

Question 6.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“रात को बड़े जोर का झक्कड़ चला। सेक्रेटेरियट के लॉन में जामुन का पेड़ गिरा। सुबह को जब माली ने देखा, तो उसे पता चला कि पेड़ के नीचे एक आदमी दबा पड़ा है।”

[‘जामुन का पेड़’ —कृष्ण चंदर]

(Jamun ka Ped—Krishna Chander)

- (i) माली ने यह देखकर क्या किया और क्यों? [2]
 (ii) पहले, दूसरे और तीसरे क्लर्क ने क्या कहा? क्या तीसरे क्लर्क को उस दबे हुए आदमी से सहानुभूति थी? [2]
 (iii) माली ने क्या सुझाव दिया? मोटे चपरासी की बात सुनकर माली क्या बोला? [3]
 (iv) कहानी के अंत में क्या हुआ था? देर से मिलने वाला न्याय महत्वहीन होता है कैसे? [3]

Question 7.

Read the extract given below and answer in Hindi the questions that follow:

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“पर, ‘सब दिन होत न एक समान’ अकस्मात् दिन फिरे और सेठ को गरीबी का मुँह देखना पड़ा। संगी-साथियों ने भी मुँह फेर लिया और नौबत यहाँ तक आ गई कि सेठ व सेठानी भूखे मरने लगे।”

[महायज्ञ का पुरस्कार—यशपाल]

(Mahayagya Ka Puraskar—Yashpal)

- (i) अकस्मात् बुरा समय किसका आ गया था तथा बुरा समय आने से पहले उसकी दशा कैसी थी? [2]
 (ii) अपना बुरा समय दूर करने के लिए सेठ ने क्या उपाय सोचा? इस उपाय के लिए उन्हें किसके पास जाना पड़ा? [2]
 (iii) सेठ ने मार्ग में कौन-सा महायज्ञ किया था? क्या वह वास्तव में महायज्ञ था? समझाकर लिखिए। [3]
 (iv) कहानी का उद्देश्य लिखिए। [3]

साहित्य सागर—पद्य (Sahitya Sagar—Poems)

Question 8.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

लाठी में हैं गुण बहुत, सदा रखिये संग।
 गहरि नदी, नाली जहाँ, तहाँ बचावै अंग।।
 तहाँ बचावै अंग, झपटि कुत्ता कहँ मारै।
 दुश्मन दावागीर होय, तिनहूँ को झारै।।
 कह ‘गिरिधर कविराय’ सुनो हे दूर के बाठी।।
 सब हथियार न छाँड़ि, हाथ महँ लीजै लाठी।।

[कुंडलियाँ—गिरिधर कविराय]

(Kundaliya—Giridhar Kavi Rai)

- (i) इस कुंडली में किसकी उपयोगिता बताई गई है? कवि ने किस समय मनुष्य को लाठी रखने का परामर्श दिया है? [2]
 (ii) लाठी हमारे शरीर की सुरक्षा किस प्रकार करती है? [2]

- (iii) लाठी किन तीनों से निपटने में सहायक होती है और किस प्रकार? [3]
 (iv) कवि सब हथियार छोड़कर लाठी लेने की बात क्यों कर रहे हैं? अपने विचार व्यक्त करते हुए कुंडलियाँ लेखन का उद्देश्य स्पष्ट कीजिए। [3]

Question 9.

Read the extract given below and answer in Hindi the questions that follow:

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“चाट रहे जूटी पत्तल वे कभी सड़क पर खड़े हुए,
 और झपट लेने को उनसे कुत्ते भी हैं अड़े हुए।
 ठहरो, अहो मेरे हृदय में है अमृत, मैं सींच दूँगा।
 अभिमन्यु जैसे हो सकोगे तुम,
 तुम्हारे दुःख मैं अपने हृदय में खींच लूँगा।”

[भिक्षुक—सूर्यकांत त्रिपाठी 'निराला']

[Bhikshuk—Suryakanth Tripathi 'Nirala']

- (i) पहली दो पंक्तियों में कवि ने क्या दृश्य प्रस्तुत किया है? [2]
 (ii) इस भावुक दृश्य से हमारे हृदय में क्या भाव उत्पन्न होते हैं? [2]
 (iii) क्या भिक्षुकों की मदद करना मानवीय धर्म नहीं है? यहाँ अभिमन्यु का उदाहरण कवि ने क्यों दिया है? [3]
 (iv) प्रस्तुत कविता का केन्द्रीय भाव लिखिए। [3]

Question 10.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“मैं पूर्णता की खोज में
 दर-दर भटकता ही रहा
 प्रत्येक पग पर कुछ-न-कुछ
 रोड़ा अटकता ही रहा
 पर हो निराशा क्यों मुझे?
 जीवन इसी का नाम है।
 चलना हमारा काम है।”

[चलना हमारा काम है—शिवमंगल सिंह 'सुमन']

(Chalna Hamara Kaam Hai—Shivmangal Singh 'Suman')

- (i) कवि ने मनुष्य के जीवन के बारे में क्या कहा है तथा क्यों? [2]
 (ii) कवि के अनुसार जीवन का महत्व किसमें है? स्पष्ट कीजिए। [2]
 (iii) जीवन में सुख-दुःख और आशा-निराशा के प्रति हमारा क्या दृष्टिकोण होना चाहिए? अपने दुःखों और निराशा के लिए हमें किसको दोष देना उचित नहीं है तथा क्यों? समझाकर लिखिए। [3]
 (iv) प्रस्तुत कविता के माध्यम से कवि ने पाठकों को क्या संदेश दिया है? [3]

** Answer is not given due to the change in the present syllabus.

नया रास्ता (सुष्मा अग्रवाल)

(Naya Raasta—Sushma Agarwal)

Question 11.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

अमित मेज पर बैठा खाना खाने लगा। माँ भी उसके पास बैठ गई। बैठे-बैठे वह न जाने किन विचारों में खो गई और एकटक अमित की ओर ही देखती रही।

- (i) माँ अमित की तरफ देखते हुए क्या सोच रही थी? [2]
 (ii) दीपक कौन है? उन्हें किस बात का कार्ड मिला? [2]
 (iii) मधु के बारे में माँ ने अमित से क्या कहा? [3]
 (iv) माँ को घर में बहू की कमी क्यों अखरती थी? [3]

Question 12.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“दूसरे ही क्षण मीनू उसके सामने आ गई और खुशी से उसके हाथ चूम लिए। अरे मीनू ! आज तो बहुत प्रसन्न दिखाई दे रही हो। क्या बात है? नीलिमा ने पूछा।”

- (i) मीनू कौन है? उसकी प्रसन्नता का कारण क्या है? [2]
 (ii) ‘उसके’ सर्वनाम का प्रयोग किसके लिए किया गया है? उसका संक्षिप्त परिचय दीजिए। [2]
 (iii) मीनू के चेहरे पर किस बात को सोचकर उदासी छा जाती है? मीनू की उदासी कब और किस प्रकार दूर होती है? समझाकर लिखिए। [3]
 (iv) प्रस्तुत उपन्यास का उद्देश्य स्पष्ट कीजिए। [3]

Question 13.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“परंतु तुम ये तो सोचो कि आजकल शादी के बाद ही दावत दी जाती है। यदि हम प्रीतिभोज नहीं देंगे तो दुनिया वाले क्या कहेंगे और फिर बड़े घर की लड़की आ रही है। दावत नहीं देंगे तो सब लोग बात बनाएँगे।”

- (i) उपर्युक्त कथन किसने, किस अवसर पर कहा था? [2]
 (ii) ‘बड़े घर की लड़की’ किसको कहा गया है? उसका संक्षिप्त परिचय दीजिए। [2]
 (iii) उपर्युक्त कथन के विषय में अमित के क्या विचार हैं? वह इस शादी से सहमत क्यों नहीं है? धनीमल जी ने शादी के प्रस्ताव के साथ क्या लालच दिया था? [3]
 (iv) आजकल के मध्यमवर्गीय परिवारों में विवाह आदि रीति-रिवाजों के अवसर पर होने वाले फिजूलखर्ची पर अपने विचार लिखिए। [3]

एकांकी संचय

(Ekanki Sanchay)

Question 14.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“काश कि मैं निर्मम हो सकती, काश कि मैं संस्कारों की दासता से मुक्त हो सकती ! हो पाती तो कुल धर्म और जाति का भूत मुझे तंग न करता और मैं अपने बेटे से न बिलुडूती।”

[संस्कार और भावना—विष्णु प्रभाकर]

(Sanskar Aur Bhavna—Vishnu Prabhakar)

- (i) वक्ता कौन है? यह वाक्य वह किससे कह रही है? [2]
 (ii) ‘संस्कारों की दासता सबसे भयंकर शत्रु है’ यह कथन एकांकी में किसका है? उसने ऐसा क्यों कहा? [2]
 (iii) संस्कारों की दासता के कारण वक्ता को किन-किन कठिनाइयों का सामना करना पड़ा? [3]
 (iv) प्रस्तुत एकांकी द्वारा एकांकीकार ने क्या संदेश दिया है? [3]

Question 15.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“जानता हूँ युधिष्ठिर ! भलीभाँति जानता हूँ। किंतु सोच लो, मैं थककर चूर हो गया हूँ, मेरी सभी सेना तितर-बितर हो गई है, मेरा कवच फट गया है, मेरे शस्त्रास्त्र चूक गये हैं। मुझे समय दो युधिष्ठिर ! क्या भूल गए मैंने तुम्हें तेरह वर्ष का समय दिया था?”

[महाभारत की एक साँझ—भारत भूषण अग्रवाल]

(Mahabharat Ki Ek Sanjh—Bharat Bhushan Agarwal)

- (i) वक्ता कौन है? वह क्या जानता था? [2]
 (ii) वक्ता इस समय असहाय क्यों हो गया था? क्या वह वास्तव में असहाय था? [2]
 (iii) श्रोता कौन है? श्रोता को तेरह वर्ष का समय कैसे दिया था? इस कथन को आप कितना सही मानते हैं? [3]
 (iv) वक्ता ने जो समय दिया था उसका उद्देश्य क्या था? वह अपने उद्देश्य में सफल हो सका? स्पष्ट कीजिए। [3]

Question 16.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“आज कुसमय नाच-रंग की बात सुनकर मेरे मन में शंका हुई थी। इसलिए मैंने कुँवर को वहाँ जाने से रोक दिया था। संभव था कि कुँवर वहाँ जाते और बनवीर अपने सहायकों से कोई काण्ड रच देता।”

[दीपदान—डॉ. रामकुमार वर्मा]

(Deepdan—Dr. Ram Kumar Verma)

- (i) उपर्युक्त कथन का वक्ता कौन है? उसका संक्षिप्त परिचय दीजिए। [2]
 (ii) नाच-रंग का आयोजन किसने और किस उद्देश्य से किया था? [2]
 (iii) बनवीर कौन है? उसका परिचय देते हुए उसका चरित्र-चित्रण कीजिए। [3]
 (iv) 'दीपदान' एकांकी के शीर्षक की सार्थकता बताइए तथा एकांकी के माध्यम से एकांकीकार ने क्या शिक्षा दी है? [3]

ANSWERS

SECTION 'A'

Answer 1.

(i) "परोपकार की भावना लोक-कल्याण से पूर्ण होती है"

मनुष्य एक सामाजिक प्राणी है। समाज में वह मिल-जुलकर रहता है। एक-दूसरे के सुख-दुःख में भागीदार होता है। मानव समाज के सुसंचालन के लिए मानव हृदय में परोपकार की भावना का होना नितांत आवश्यक है। मनुष्य तो स्वभाव से ही परोपकारी जीव है। दूसरों के कष्टों को देखकर हम प्रभावित होते हैं और उन्हें दूर करने का जो भाव हमारे दिल में उत्पन्न होता है तब यहीं परोपकार की भावना का जन्म होता है।

परोपकार शब्द 'पर' + 'उपकार' दो शब्दों से मिलकर बना है। जिसका अर्थ है दूसरों की भलाई करना।

परहित सरिस धर्म नहीं भाई।

पर पीड़ा सम नहीं अधमाई।।

अनंत जलराशि का भार ढोने वाली नदियाँ अपने जीवन में सुबह से शाम तक लगातार सिर्फ दूसरों के कल्याण के लिए ही बहती हैं। वृक्ष भी आँधी-तूफान सहते हुए चुपचाप खड़े रहते हैं ताकि थके, भूखे लोगों को अपनी छाया तथा फल प्रदान करके उनकी भूख और थकावट दूर कर सकें।

मानवता का उद्देश्य तथा मानव जीवन तभी सार्थक हो सकता है जब वह अपने कल्याण के साथ-साथ दूसरों के कल्याण के विषय में भी सोचें। यदि हमारे पास धन है तो निर्धनों की मदद करें, यदि विद्या है तो अशिक्षित को शिक्षा प्रदान करें, अतः परहित साधना ही सच्ची मानवता है।

हमारे देश में अनेक परोपकारी महान पुरुषों ने जन्म लिया है, जिन्होंने परोपकारी अमरबेल को सींचा है। जैसे—रंतिदेव ने भूख से व्याकुल होने पर भी अपना भोजन से भरा थाल एक भूखे व्यक्ति को दे दिया। महाराज शिवि ने एक कबूतर की प्राण रक्षा की खातिर अपने शरीर का मांस तक दान कर दिया। महाकवि निराला जी का पूरा जीवन ही परमार्थ में बीता।

परोपकार की शिक्षा किसी भी विद्यालय में नहीं सिखाई जाती है। परोपकार करने की शिक्षा अपने घर-परिवार से ही प्राप्त होती है। परोपकार की भावना से मनुष्य का हृदय बिना पानी और बिना साबुन के ही निर्मल बन जाता है। देश के उत्थान के लिए सदैव ही परोपकारी व्यक्तियों की आवश्यकता होती है।

आज आवश्यकता इस बात की है कि मानव अपने स्वार्थ की भावना को त्याग करके, मानवता के कल्याण के लिए प्रयत्न करे। वास्तव में परोपकार से बड़ा न कोई पुण्य है न कोई धर्म।

(ii) आवासीय विद्यालयों के लाभ एवं हानियाँ

प्रारंभिक वर्षों में शिक्षा के लिए घर और स्कूल दोनों में पढ़ाई करने की आवश्यकता होती है। अधिकांश घरों में छोटे परिवार होते हैं, और अधिकांश मामलों में माता-पिता दोनों जीविका चलाने के लिए

कार्य करते हैं, उस समय वे बच्चों की पढ़ाई और पालन-पोषण को अधिक समय नहीं दे पाते।

ऐसे परिदृश्य में अपने बच्चे को एक बोर्डिंग स्कूल में स्थानांतरित करना हमेशा बेहतर होता है। इसके लिए सबसे अच्छी आयु सात वर्ष की होती है।

बोर्डिंग स्कूल के कई लाभ हैं, सबसे पहले सभी बच्चों को समान स्तर मिलता है, सभी एक ही लाभ प्राप्त करते हैं। बोर्डिंग स्कूल हर एक छात्र के समग्र विकास पर अधिक ध्यान देते हैं और दैनिक दिनचर्या और नियमों का पालन करने के लिए अनुशासन पैदा करते हैं। बोर्डिंग स्कूल में पढ़ने वाले युवाओं के व्यवहार में सकारात्मक परिवर्तन दिखाई देते हैं।

सभी छात्रों को खेल और अन्य सह पाठ्यक्रम से जुड़ी गतिविधियों के साथ-साथ अच्छी तरह संतुलित दिनचर्या के माध्यम से पर्याप्त रूप से अध्ययन कराया जाता है।

इसका फायदा यह भी है कि छात्रों की छोटी संख्या और शिक्षकों के साथ पूर्ण समय बिताने के कारण शिक्षकों और छात्रों के बीच घनिष्ठ संबंध विकसित हो जाता है। वे भावनात्मक, शारीरिक और शैक्षणिक सभी पहलुओं में छात्र के विकास में शामिल होते हैं और उनके भविष्य में आने वाली हर परिस्थितियों का सामना अच्छे से कर सकें; इसके लिए तैयार करते हैं।

बोर्डिंग स्कूल का सबसे बड़ा नुकसान यह है कि कई विद्यालयों में बच्चों से अनावश्यक सख्ती बरती जाती है। परिवार से दूर रहकर वे भावनात्मक रूप से कमजोर महसूस करते हैं। वे अपना बचपन जी नहीं पाते हैं। माता-पिता तथा भाई-बहनों के साथ भावनात्मक रूप से जुड़ नहीं पाते हैं। छात्र के लिए बोर्डिंग स्कूल में रहना कठिन होता है क्योंकि वहाँ नये लोगों को अपना दोस्त बनाने में समय लगता है, परिवार के साथ समय नहीं बिता पाते हैं। बोर्डिंग स्कूल के नियम और कानून बहुत सख्त होते हैं; जिन्हें निभाना कठिन होता है। लेकिन वर्तमान में अभिभावकों के पास समय की कमी के कारण वे अपने बच्चों को बोर्डिंग स्कूल में डालना पसंद करते हैं। जैसे कि हम जानते ही हैं कि हर चीज के फायदे-नुकसान दोनों ही होते हैं अतः बोर्डिंग स्कूल छात्र जीवन के लिये उपयोगी होते हैं। यहाँ उनका चरित्र निखरता है, हाँ माता-पिता से अपेक्षित है कि बच्चे को बिल्कुल अकेला ना छोड़ें। समय-समय पर मिलते रहें और वहाँ हो रही गतिविधियों के बारे में जानकारी प्राप्त करते रहें।

(iii) संयुक्त परिवार में विवाह-एक

उत्सव का वर्णन

परिवार, पति-पत्नी और बच्चों के समूह को कहते हैं किंतु दुनिया के अधिकांश भागों में वह सम्मिलित वास वाले रक्त संबंधियों का समूह है जिसमें विवाह और दत्तक प्रथा स्वीकृत व्यक्ति भी सम्मिलित हैं।

मैं एक संयुक्त परिवार में रहता हूँ। दादा-दादी, चाचा-चाची सभी साथ रहते हैं और समय-समय पर अन्य रिश्तेदार भी मिलते रहते हैं। पिछले साल गर्मियों की छुट्टियों में मुझे एक विवाह में जाने का अवसर मिला। मुझे मेरे मामा के बेटे की शादी में शामिल होने का निमंत्रण मिला। शादी जून की दस तारीख को थी। मेरे मामाजी का घर एक गाँव में है।

हम एक दिन पहले सपरिवार उनके गाँव पहुँच गये। घर में बहुत रौनक थी। मेरे मामाजी ने हम सबका स्वागत किया। मेरे नानाजी व नानीजी मुझे देखकर बहुत प्रसन्न हुए। चाय नाश्ते के बाद सभी बातें करने लगे। एक तरफ गाँव की स्त्रियाँ ढोलक पर गीत गा रही थीं। दूसरी तरफ हलवाई मिठाइयाँ बना रहे थे। मेरे मामाजी का घर बहुत बड़ा था। बाहर घर के बुजुर्ग आपस में शादी की तैयारियों के बारे में चर्चा कर रहे थे।

अगले दिन दोपहर में हम सभी बाराती गाड़ियों द्वारा गाजियाबाद स्टेशन को रवाना हो गये। क्योंकि हमें वहाँ से ट्रेन द्वारा मुरादाबाद जाना था। बारात में बड़े-बुजुर्ग और बच्चे कुल मिलाकर सौ लोग थे। ट्रेन के आते ही हम सब डिब्बे में चढ़ गये। मामाजी ने पहले ही सबके लिए सीटों का आरक्षण करा लिया था, जिससे किसी को किसी भी प्रकार की कोई परेशानी नहीं हुई। ट्रेन में सभी अपने-अपने हमउम्र लोगों के साथ हंसी-मजाक कर रहे थे। बच्चे ट्रेन में दौड़ रहे थे। बड़े लोगों ने उन्हें डाँटकर बिठा दिया। रास्ते में मामाजी ने सभी को नाश्ता दिया जो कि उन्होंने बारात के चलते समय ही रखवा लिया था। इसी तरह हँसते-गाते और मस्ती करते हुए हम सभी शाम को करीब चार बजे मुरादाबाद पहुँच गये। स्टेशन पर उतरकर मेरे मामाजी ने सभी को इकट्ठा करके गिनती की। स्टेशन पर कन्या पक्ष के लोग हमारा स्वागत करने के लिए आये थे। वहाँ से वे हमें कारों द्वारा धर्मशाला ले गये। जहाँ बारात के उठरने का बड़ा सुंदर इंतजाम किया गया था।

धर्मशाला के कमरों में हमने अपना-अपना सामान रखा। मामाजी ने मुझे वर के साथ ही उठरने को कहा। धर्मशाला में हम सभी नहा-धोकर तैयार हुए, वहाँ हमें नाश्ता कराया गया जो कि बहुत स्वादिष्ट था।

शाम सात बजे बारात के चलने की तैयारी शुरू हो गई। मैंने अपने मामा के लड़के को तैयार किया। वह बहुत ही सुंदर लग रहा था। उसे एक सुंदर सी सजी हुई घोड़ी पर बैठाया गया। हम लोग रास्ते भर नाचते-गाते हुए कन्या पक्ष के घर पहुँचे।

घर पहुँचते ही द्वार पर फूलों की माला पहनाकर हम सभी का स्वागत किया गया। हमें शीतल पेय पीने को दिया गया। दूल्हे को घोड़ी से उतारकर स्टेज पर ले जाया गया; जहाँ दुल्हन के आने पर एक-दूसरे को वरमाला पहनाई गई।

तत्पश्चात शादी की कुछ रस्में पूरी की गईं। फिर हम सभी को भोजन के लिए बुलाया गया। खाना बहुत स्वादिष्ट था। तरह-तरह के पकवान थे। हम सभी ने पेट भरकर खाया। भोजन समाप्त करने के बाद फेरों की तैयारियाँ शुरू हो गईं।

घर वालों को छोड़कर बाकी सभी बाराती धर्मशाला में आराम करने चले गये। प्रातः विदाई की तैयारियाँ शुरू हो गईं।

सभी बारातियों को सुबह का नाश्ता कराया गया और बारात विदा हो गई। हम सभी फिर से ट्रेन द्वारा वापस गाजियाबाद आ गये।

विवाह एक ऐसा आनंद का उत्सव है जिसमें पूरा परिवार आनंदित होता है हर उम्र के लोग आनंद प्राप्त करते हैं।

(iv)

“अपनी योजना में सफल हो सकी”

रीता मेरी बचपन की मित्र थी। कक्षा 1 से हम एक ही विद्यालय में पढ़ते आ रहे हैं। उसके परिवार में उसकी एक छोटी बहन गीता, एक छोटा भाई राजू तथा माता-पिता थे। उसके पिता एक सरकारी दफ्तर में काम करते थे। वह एक मध्यमवर्गीय परिवार था।

रीता पढ़ाई-लिखाई में बहुत ही होशियार थी। हमेशा कक्षा में प्रथम आती थी। पढ़ने के साथ-साथ वह खेलने, गाने-नाचने में भी होशियार थी। विद्यालय का कोई भी सांस्कृतिक या खेल का कार्यक्रम हो, रीता के बिना नहीं होता था। घर के कामों में भी वह अपनी माँ का हाथ बँटाया करती थी। सभी उसको बहुत पसंद करते थे। दसवीं कक्षा में भी उसने प्रथम स्थान प्राप्त किया। वह बहुत खुश थी। फिर उसने ग्यारहवीं कक्षा में प्रवेश लिया। उसी की कक्षा में एक नई लड़की ने प्रवेश लिया जिसका नाम मीरा था। वह एक बड़े व्यवसायी की इकलौती पुत्री थी, जिसको अपने पैसे का घमण्ड था। रीता भी उसकी सहेली बन गई थी। अब उसने मेरे साथ बात करना और रहना बिल्कुल छोड़ दिया था। वह अब हर समय मीरा के साथ ही रहती थी। मीरा एक बिगड़ी हुई लड़की थी। फैशन करना, पिक्चरें देखना, पार्टियाँ करना उसके यही शौक थे। रीता भी धीरे-धीरे उसके रंग में रंगने लगी थी। अब उसका मन पढ़ाई में भी नहीं लगता था। उस पर भी फैशन करने का भूत सवार हो गया था। सीधी सादी रीता को अब पार्टियों में मजा आने लगा था।

अब वह घर से भी गायब रहती थी तथा अपने माता-पिता से नाजायज़ माँगें करती थी, महँगी ड्रेस या पिक्चर के लिए पैसे माँगती थी। उसके माता-पिता जब उसकी माँगें पूरी नहीं करते थे तो उनसे झगड़ा करती थी। कभी-कभी वह चोरी भी करने लगी थी। उसकी इन आदतों से उसके घर वाले और स्कूल के लोग भी परेशान थे। मैं भी अपनी मित्र को इस तरह गलत रास्ते पर जाते देख परेशान थी।

मैंने इस बारे में प्रधानाचार्य जी से बात की। एक दिन स्कूल की प्रधानाचार्या ने उसके माता-पिता को बुलाया और रीता के बारे में बताया। उसकी माँ ने प्रधानाचार्या से मिलकर एक योजना बनाई। अगले दिन जब वह सोकर उठी और स्कूल के लिए तैयार होने लगी तो घर में किसी ने उससे बातचीत नहीं की। उसने अपनी छोटी बहन और भाई से भी बात करनी चाही पर कोई नहीं बोला। सभी अपने-अपने काम में लगे रहे। उसके बहन-भाई भी उसके साथ स्कूल नहीं गये। उसे अकेले ही जाना पड़ा। स्कूल में भी कक्षा में किसी ने भी उससे बात नहीं की न उसके साथ कोई बैठा। उसको बड़ा अजीब सा लगा, लेकिन उसने कोई ध्यान नहीं दिया और वह मीरा के साथ घूमने लगी तथा स्कूल के बाद पिक्चर देखने चली गई। रात को देर से घर आने पर भी उसको डाँट नहीं पड़ी। कई दिन तक ऐसा ही चलता रहा अब उसे कुछ भी अच्छा नहीं लग रहा था। वह रात को सो नहीं सकी। सारी रात वह अपने पिछले दिनों किये गये बर्ताव के बारे में सोचती रही और उसे अब पश्चाताप होने लगा, वह सारी रात रोती रही।

सुबह उठते ही वह अपनी माँ के पास गई और अपने किये गये व्यवहार के लिए क्षमा माँगी और भविष्य में इस तरह का काम न करने की कसम खाई। माँ, पिताजी व भाई बहनों ने उसे माफ कर दिया। विद्यालय में भी उसने सभी अध्यापिकाओं और प्रधानाचार्या जी से माफी माँगी। तभी उसके माता-पिता भी वहाँ आये और उन्होंने

रीता को बताया कि तुमको सुधारने के लिए हमने प्रधानाचार्या से मिलकर यह योजना बनाई थी। इस प्रकार अततः मैं अपनी योजना में सफल हो सकी।

(v) **चित्र प्रस्ताव**

प्रस्तुत चित्र में एक गाँव दिखाया गया है जिसमें किसी विद्यालय के बच्चे दिखाये गये हैं। इस चित्र में चार लड़कियाँ और तीन लड़के दिखाई दे रहे हैं। सभी बच्चों के हाथ में टैबलेट दिखाई दे रहे हैं। जो इनको विद्यालय की तरफ से बाँटे गये हैं, जिससे बच्चे नई तकनीकी से शिक्षा प्राप्त कर सकें। आजकल शहरों में ही नहीं गाँवों में भी कम्प्यूटर पहुँच गये हैं।

शिक्षा के क्षेत्र को कम्प्यूटर ने बहुत अधिक प्रभावित किया है इसलिए सभी शिक्षण संस्थानों में इसकी शिक्षा अनिवार्य होती जा रही है। इसके द्वारा विश्वभर का ज्ञान पल भर में पी. सी. के स्क्रीन पर देखा जा सकता है। इसकी शिक्षा के बाद भारी भरकम पुस्तकों को रखने, सँभालने और उन्हें उलटने-पलटने की आवश्यकता समाप्त हो जायेगी। पुस्तकों से भरी बड़ी-बड़ी लाइब्रेरियों की जगह सी.डी. ले रही हैं। जिनमें हजारों पृष्ठ की सामग्री एक छोटी-सी डिबिया में सुरक्षित रखी जा सकती है। शिक्षा के डिजिटलीकरण के द्वारा सारा विश्व एक पाठशाला में बदल गया है।

कम्प्यूटर मशीनी मानव की तरह दिखता है। कम्प्यूटर के कार्य का क्षेत्र बढ़ा होने के कारण उससे जुड़ी हर जानकारी बहुत जरूरी है इसीलिए विद्यालयों में भी बच्चों को इसकी शिक्षा पर बल दिया गया है। इसकी सहायता से बच्चे अपने विषय से संबंधित जानकारी प्राप्त कर सकते हैं तथा उस विषय को अच्छे से समझ सकते हैं। वस्तुतः आज का समय कम्प्यूटर का ही समय है। कम्प्यूटर की सहायता से बहुत से कार्य सरल हो गये हैं। इनसे पढ़ाई-लिखाई आसान हो गई है जिससे विद्यार्थियों को नई शिक्षा और नई गति प्राप्त हुई है।

Answer 2.

- (i) सेवा में,
प्रधानाचार्य जी,
दिल्ली पब्लिक स्कूल,
नई दिल्ली।

विषय— लोगों को सफाई के प्रति जागरूक करने के लिए अपने विद्यालय के सफाई दल को ले जाने के लिए स्वीकृति हेतु पत्र।

महोदय,

सविनय निवेदन है कि आप जानते ही हैं कि आजकल देश में स्वच्छ भारत की एक मुहिम छेड़ी जा रही है। देशभर में लोगों में इसके लिए अच्छा-खासा उत्साह है।

देश के बड़े-बड़े लोग चाहे वे खिलाड़ी हों, व्यवसायी हों, नेता हों या अभिनेता हों, सभी सफाई के प्रति लोगों को जागरूक कर रहे हैं। मैं भी अपने विद्यालय के सफाई दल का नेता हूँ। इसलिए मैं भी अपने दल के साथ पास के एक झुग्गी-झोंपड़ी बस्ती में रहने वालों को सफाई के प्रति जागरूक करने के लिए जाना चाहता हूँ। उन लोगों को सफाई के लाभ बताना चाहता हूँ। अतः आपसे निवेदन है कि आप हमारे दल को वहाँ ले जाने की स्वीकृति प्रदान करें। आपकी अति कृपा होगी।

धन्यवाद !

आपका आज्ञाकारी शिष्य

राजेश कुमार

कक्षा : 10 अ

दिनांक : 10.10.20XX

- (ii) 15/13, राजपुर रोड,
दिल्ली।

प्रिय मित्र रमेश

सप्रेम नमस्ते,

आशा करता हूँ कि वहाँ पर सब कुशल मंगल होंगे। यहाँ पर सभी ठीक प्रकार से हैं। तुम्हारी पढ़ाई कैसी चल रही है? मेरी परीक्षाएँ शुरू हो गई हैं। आशा है तुम्हारी परीक्षाएँ भी अच्छी होंगी।

मैं तुम्हें एक बात बताना चाहता हूँ। पिछले कुछ महीनों से हमारे विद्यालय की टीम ने एक अभियान चलाया था जिसमें हमने मूक-बधिर छात्रों की सहायता के लिए धनराशि एकत्रित की थी और उन लोगों की पढ़ाई, खाने-पीने, रहने और कपड़े आदि में मदद की थी। इसके लिए सभी ने हमारी सराहना की थी। तुम भी इस प्रकार अपने विद्यालय के छात्रों की एक टीम बनाकर मदद कर सकते हो। तुम कोई भी सहयोग राशि एकत्रित करके मूक-बधिर विद्यालय में भी दान कर सकते हो। 'मूक-बधिर विद्यालय' विशेष रूप से इन्हीं की शिक्षा के लिये बनाये जाते हैं। जहाँ ये बेसिक शिक्षा, अपने लिये अनुकूल वातावरण में प्राप्त कर सकें। मैं तुम्हें बताना चाहता हूँ कि किस प्रकार और कैसा व्यवहार करना चाहिए कि इनकी जिंदगी में रोशनी की एक किरण बनकर सपनों को साकार कर सकते हैं।

हमें विकलांगों के प्रति सकारात्मक रहना चाहिए। किसी भी विकलांग जैसे नेत्रहीन, शारीरिक असमर्थता से ग्रसित हो तो उनको सड़क पार करवाने, बस में बैठाने-उतारने में मदद करनी चाहिए। विकलांग छात्रों को सरकारी योजनाओं से लाभ प्राप्त करने में मदद कर सकते हैं, किसी विकलांग छात्र के स्कूल की फीस या दवा का खर्च उठा सकते हैं। इस प्रकार छोटी-छोटी मदद करके हम उनकी सहायता कर सकते हैं। शेष फिर बताना कि क्या तुमने ऐसा करने की कोशिश की? घर पर अपने सभी बड़ों को चरणस्पर्श तथा छोटों को प्यार देना।

पत्रोत्तर की प्रतीक्षा में।

तुम्हारा मित्र,
सुरेश

Answer 3.

- (i) पहली स्त्री ने कहा, "भगवान सबको मेरे जैसा ही बेटा दे, उसका कंठ बहुत मधुर है। उसके गीत को सुनकर कोयल और मैना भी चुप हो जाती हैं। मेरा बेटा अनमोल हीरा है।"
- दूसरी स्त्री ने कहा, "मेरा बेटा बहुत ही शक्तिशाली और बहादुर है। बड़े-बड़े पहलवानों को पछाड़ देता है। वह आधुनिक युग का भीम है।"

- (ii) तीसरी स्त्री ने अपने बेटे को बृहस्पति का अवतार इसलिए कहा क्योंकि वह जो कुछ पढ़ता था, एकदम याद कर लेता था। ऐसा लगता था मानो उसके कंठ में सरस्वती का वास हो। अर्थात् वह एक पाठी है, ज्ञान में उसकी बराबरी कोई नहीं कर सकता।

- (iii) पहली स्त्री द्वारा पूछे जाने पर चौथी स्त्री ने कहा कि उसका बेटा न गंधर्व सा गायक है और न भीम सा बलवान और न ही बृहस्पति सा बुद्धिमान।
- (iv) चौथी स्त्री के बेटे ने जब अपनी माँ को पानी का घड़ा लेकर आते हुए देखा तो अपनी माँ के पास पहुँचकर बोला “माँ, लाओ मैं तुम्हारा घड़ा पहुँचा दूँ।” माँ के मना करने पर भी उसने घड़ा अपने सिर पर रख लिया और घर की ओर चल दिया। यह देखकर तीनों स्त्रियाँ आश्चर्यचकित रह गईं।
- (v) हम जीवन में चाहें कितनी भी उन्नति क्यों न कर लें, लेकिन हमें अपने माता-पिता के साथ सम्मानजनक व्यवहार करना चाहिए एवं उनकी आज्ञा को सर्वोपरि समझना चाहिए क्योंकि हमारी उन्नति के पीछे उनका त्याग, बलिदान व प्रेरणा होती है। इसलिए जहाँ तक हो सके उनकी मदद करें और उन्हें खुशियाँ प्रदान करें।

Answer 4.

- (i) कीर्ति - अपकीर्ति विजय - पराजय
निर्मल - मलिन निर्दोष - दोषी, सदोष
- (ii) धनवान - धनी, धनाढ्य किनारा - तट, कगार
दूध - पय, दुग्ध
- (iii) अपेक्षा - अपेक्षित गुण - गुणी
- (iv) प्रदर्शनी - प्रदर्शनी लच्छमी - लक्ष्मी
अपरीचीत - अपरिचित
- (v) आसमान से बातें करना (बहुत ऊँचा होना) — आजकल की इमारतें आसमान से बातें करती हैं।
उड़ती चिड़िया पहचानना (दूर से ही मन की बात जान लेना)
— रामू के दादा जी इतने अनुभवी हैं कि उड़ती चिड़िया पहचानने में देर नहीं लगाते।
- (vi) (a) मोहन और रमेश में सच्ची मित्रता थी।
(b) मुझसे कोई भी बात निःसंकोच कहें।
(c) शिक्षकों ने अपने शिष्यों को आदेश दिये।

SECTION 'B'

Answer 5.

- (i) आनंदी की त्रैरियाँ इसलिए चढ़ गई थीं क्योंकि उसके देवर लाल बिहारी ने खाने में घी न डालने पर उसके साथ बुरा बर्ताव किया था, भोजन की थाली फेंक दी थी तथा खड़ाऊ फेंककर मारी थी। इसलिए आनंदी झुँझलाहट भरे मन से अपने पति श्रीकंठ सिंह का इंतजार कर रही थी।
- (ii) श्रीकंठ सिंह ने आनंदी से लड़ाई का कारण जानना चाहा कि असली बात क्या है? लड़ाई किस बात पर हुई थी? जब आनंदी ने उसे जब पूरी बात बतायी तब उसे दुख हुआ और क्रोध भी आया।
- (iii) इससे पहले लालबिहारी श्रीकंठ से कह चुके थे कि भैया आप जरा भाभी को समझा दीजिएगा कि मुँह सँभालकर बातचीत किया करे नहीं तो एक दिन अनर्थ हो जाएगा। बेनी माधव ने कहा कि बहू-बेटियों का यह स्वभाव अच्छा नहीं कि मर्दों के मुँह लगें। अपने मैके के सामने हमें कुछ समझती ही नहीं।
- (iv) आनंदी से घटना का हाल जानकर श्रीकंठ सिंह की आँखें लाल हो गईं, वे रात-भर नहीं सोये और बोले यहाँ तक हो गया छोकरे का साहस। उन्होंने अपने पिता से कहा दादा अब इस घर में मेरा निर्वाह न होगा। उन्होंने कहा मैं लाल बिहारी का मुँह नहीं देखना चाहता। अतः अब इस घर में लाल बिहारी रहेगा या मैं।

Answer 7.

- (i) अकस्मात् बुरा समय एक धनी सेठ का आ गया था। बुरा समय आने से पहले वे बहुत उदार थे। इतने धर्मपरायण थे कि कोई भी साधु-संत या याचक उनके दरवाजे से खाली हाथ नहीं जाता था। सभी को भरपेट भोजन मिलता था। कितने ही दीन-दुःखियों को धन दान दिया करते थे।
- (ii) अपना बुरा समय दूर करने के लिए सेठ ने अपने अच्छे समय में किए गए यज्ञ को बेचने का निश्चय किया। इसके लिए उन्हें दस-बारह कोस की दूरी पर कुंदनपुर नगर में एक धन्ना सेठ के पास उनकी सेठानी को यज्ञ बेचने के लिए जाना पड़ा।
- (iii) सेठ ने मार्ग में भूख से व्याकुल एक छटपटाते कुत्ते को अपनी सारी रोटियाँ खिला दी थीं। सेठ के अनुसार, यह महायज्ञ नहीं था क्योंकि किसी भूखे को भोजन कराना कोई यज्ञ नहीं बल्कि निःस्वार्थ भाव से किया गया मानवोचित कार्य था। भूखे को अन्न देना सभी का कर्तव्य है। हाँ, मानवोचित कार्य महायज्ञ से भी बड़ा होता है।
- (iv) प्रस्तुत कहानी 'महायज्ञ का पुरस्कार' यशपाल जी द्वारा लिखी गई कहानी है। इस कहानी में लेखक ने बताया है कि मानव सेवा ही ईश्वर सेवा होती है तथा जीवों के दुःख दूर करने से हम ईश्वर को प्रसन्न कर सकते हैं। जैसे सेठजी ने अपने भोजन को स्वयं न खाकर एक भूखे, निर्बल, मरियल कुत्ते को खिला दिया था। ऐसा केवल निःस्वार्थ भाव से उन्होंने किया था। लेखक ने बताया है भूखे को भोजन देना सभी का कर्तव्य है। इससे ईश्वर प्रसन्न होते हैं। यज्ञ, हवन आदि धार्मिक कार्यों से भी ऊपर प्राणी मात्र की सेवा करना है।

Answer 8.

- (i) इस कुंडली में लाठी की उपयोगिता बताई गई है। कवि ने लाठी रखने का परामर्श यात्रा के समय दिया है।
- (ii) लाठी हमारे शरीर की दुश्मनों से रक्षा करती है। नदी नाले को पार कराने में मदद करती है तथा जानवरों से रक्षा करती है।
- (iii) पहला, रास्ते में यदि कोई नदी या नाला आ जाता है तो लाठी के सहारे से उसे पार कर सकते हैं।
दूसरा, दुश्मन से हमारी रक्षा करती है लाठी के द्वारा उससे लड़कर उस पर विजय प्राप्त कर सकते हैं।
तीसरा, जंगली जानवरों से लाठी हमारी रक्षा करती है, यदि कोई कुत्ता या जानवर आ जाये तो ये उसे भगा सकती है।
- (iv) कवि सब हथियार छोड़कर लाठी लेने की बात इसलिए कर रहा है क्योंकि साधारण वस्तु भी जीवन में उपयोगी होती है। अन्य हथियार तो केवल लड़ाई में ही काम आते हैं परन्तु एक ही लाठी कई प्रकार से उपयोग में लाई जा सकती है और सभी तरह हमारी रक्षा कर सकती है।
इस कुण्डलियाँ लेखन का मुख्य उद्देश्य लोक व्यवहार की बातों से परिचित कराना है।

Answer 9.

- (i) कवि ने प्रथम दो पंक्तियों में बताया है कि भिक्षुक के बच्चे अपनी भूख मिटाने के लिए सड़क पर दूसरों के द्वारा फेंकी हुई झूठी पत्तल चाट रहे हैं और वहाँ खड़े कुत्ते भी उनसे वह झूठी पत्तलें छीनने के लिए तैयार खड़े हैं।
- (ii) इस दृश्य को देखकर हमारे हृदय में उनके प्रति प्रेम, दया और सहानुभूति के भाव उत्पन्न होते हैं। उनके प्रति हमारे मन में संवेदनाएँ जाग्रत होती हैं कि हमारे देश में कितने अभागे लोग हैं, जिन्हें

भरपेट भोजन भी नसीब नहीं होता। इनका कोई कृपा-पात्र नहीं है। इसलिए भिक्षु की दशा पशु से भी बदतर है।

- (iii) भिक्षुओं की मदद करना हमारा मानवीय धर्म है। यहाँ अभिमन्यु का उदाहरण इसलिए दिया है क्योंकि भिक्षुओं को भी अभिमन्यु की तरह समाज के निर्दयी लोगों का साहस से सामना करना पड़ता है। अभिमन्यु की तरह ही उसे इस भुखमरी, गरीबी के चक्रव्यूह से बाहर निकलने का प्रयास करना पड़ता है।
- (iv) प्रस्तुत कविता लेखन का मुख्य भाव—भिखारी के प्रति अंतर्वेदना को जाग्रत करना है तथा एक गरीब किस प्रकार से अपना दुखमय जीवन व्यतीत करता है और हमारी उसके प्रति किस प्रकार की भावनाएँ होनी चाहिए। हमें गरीबों के प्रति संवेदनशील होना चाहिए। वह भी समाज का हिस्सा है उनके दुःखों को कम करने का प्रयत्न करना चाहिए।

Answer 10.

- (i) कवि ने मनुष्य के जीवन के बारे में कहा कि जीवन से सफलता के साथ असफलता, सुख के साथ दुःख और सरलता के साथ बाधाएँ लगी रहती हैं। इसलिए बाधाओं को देखकर निराश नहीं होना चाहिए। जीवन इसी का नाम है। किसी को भी जीवन में पूर्णता प्राप्त नहीं होती है।
- (ii) कवि के अनुसार जीवन का महत्व निरंतर चलते रहने में है। जो लोग अपने जीवन की गति को निरंतर कायम रखते हैं वे ही जीवन में सफल होते हैं।
- (iii) जीवन में सुख-दुःख और आशा-निराशा आने पर भी हमें उनसे निराश नहीं होना चाहिए। इसके लिए हमें ईश्वर और भाग्य को दोष नहीं देना चाहिए कि मेरा भाग्य मेरे विपरीत चल रहा है या ईश्वर मेरा साथ नहीं दे रहा है। बल्कि अपने कर्म को निडरता और दृढ़तापूर्वक करते हुए आगे बढ़ना चाहिए और अपना भाग्य स्वयं बनाना चाहिए। क्योंकि गति जीवन का सत्य है।
- (iv) कवि पाठकों को संदेश देता है कि जीवन में विकास की ओर हमेशा अग्रसर रहना चाहिए। कवि कहना चाहता है कि हमारे जीवन में सुख-दुःख, आशा-निराशा आते-जाते रहते हैं कभी-कभी अपने भी हमारा साथ छोड़ जाते हैं, लेकिन हार न मानते हुए अपने लक्ष्य की ओर बढ़ते रहना चाहिए क्योंकि चलना हमारा काम है।

Answer 11.

- (i) माँ अमित की तरफ देखकर सोच रही थी कि दीपक, अमित से दो वर्ष छोटा है और उसका विवाह हो रहा है। और सोच रही थी कि उसको कितना अरमान था बहू लाने का। वह सपने सँजोए बैठी थी कि जब अमित की बहू घर में आएगी तो रौनक बढ़ जाएगी। बेटी का अधिकतर समय तो कॉलेज और पढ़ाई में लग जाता था। मायाराम जी व अमित फैंक्ट्री चले जाते थे।
- (ii) दीपक अमित के मामा का लड़का है। अमित की माँ का भतीजा है और उन्हें दीपक की शादी का कार्ड मिला है।
- (iii) अमित की बहन मधु के बारे में माँ ने अमित से कहा कि मधु भी शादी के योग्य हो गई है। वह उसकी शादी करना चाहती है। परन्तु उससे पहले अमित की शादी हो जाती तो अच्छा था क्योंकि वह मधु से सात साल बड़ा है। घर में पहले बहू आएगी तो मधु की शादी में हाथ बाँटाएगी। बहू घर के काम में भी मदद करेगी।
- (iv) अमित की माँ को घर में बहू की कमी अखरती थी क्योंकि अमित और उसके पिताजी फैंक्ट्री चले जाते थे और मधु अपने कॉलेज

चली जाती थी। इसलिए अकेले होने पर उन्हें बहू की कमी अखरती थी। वे सोचती थीं कि बहू घर में होती तो उन्हें अकेले न रहना पड़ता। घर में रौनक रहती और समय का पता ही नहीं चलता।

Answer 12.

- (i) मीनू 'नया रास्ता' नामक उपन्यास की नायिका है। वह दयाराम जी की सबसे बड़ी पुत्री है। उसकी खुशी का कारण था कि उसे देखने लड़के वाले आ रहे थे। वे मेरठ में रहते थे। उन्हें मीनू का फोटो पसंद आ गया था। इसी खुशी को अपनी सहेली नीलिमा को बताने आई थी।
- (ii) 'उसके' सर्वनाम का प्रयोग नीलिमा के लिए किया गया है। नीलिमा मीनू की पक्की सहेली थी। वह बहुत सुंदर थी। वह अपने पति सुरेन्द्र के साथ एक सुखी जीवन बिता रही थी। मीनू के दिल में छिपी पीड़ा का उसे आभास हो जाता है। वह उसकी पीड़ा हटाने का सार्थक प्रयास करती है।
- (iii) मीनू के चेहरे पर उदासी इसलिए छा जाती है कि उसकी फोटो तो सबको पसंद आ जाती थी, लेकिन रंग तथा कद के कारण लड़के वाले उसे नापसंद कर जाते थे। मीनू व नीलिमा ने एम.ए. की परीक्षा दी थी। मीनू का भाई रोहित जब परीक्षा के परिणाम का अखबार लेकर आता है तो दोनों अखबार पर झपट पड़ती है। मीनू प्रथम श्रेणी में तथा नीलिमा द्वितीय श्रेणी में पास हुई थी। प्रथम श्रेणी में पास होने पर मीनू खुशी से फूली न समायी। इसी कारण मीनू की उदासी दूर हो जाती है।
- (iv) 'नया रास्ता' उपन्यास एक सामाजिक उपन्यास है जिसका उद्देश्य यह बताना है कि स्त्री 'अबला नहीं बल्कि सबला है।' मीनू देखने में अत्यधिक सुन्दर नहीं है। उसकी शादी इसी कारण नहीं हो पाती है रिश्ता आता है और वापस चला जाता है तभी मीनू विवाह न करने का फैसला कर लेती है और मेरठ में रहकर वकालत की पढ़ाई शुरू करती है। तीन साल की वकालत प्रथम श्रेणी में पास करने के बाद वह वकील बन जाती है। वकील बनकर मीनू यह सिद्ध कर देती है कि नारी अबला नहीं सबला है। वह भी पढ़-लिखकर अपने पैरों पर खड़ी हो सकती है। लड़की का केवल रंग-रूप ही उसका जीवन निर्धारित नहीं करता बल्कि उसकी प्रतिभा, योग्यता अधिक महत्व रखती है। मीनू की शादी अन्त में अमित के साथ हो जाती है।
- इस प्रकार उपन्यास का उद्देश्य यही स्पष्ट करना है कि स्त्री कमजोर नहीं हैं उसमें भी प्रतिभा और योग्यता है। उसका रंग-रूप देखकर शादी तय करना उचित बात नहीं है किसी के रंग-रूप के आधार पर उसका तिरस्कार बहुत ही अनुचित बात है। मीनू इसी अयोग्यता को योग्यता में बदलकर अपनी मंजिल तक पहुँचती है।

Answer 13.

- (i) उपर्युक्त कथन अमित के पिताजी मायाराम ने अपनी पत्नी से कहा था जब उनके घर में अमित की शादी की तैयारियाँ चल रही थीं।
- (ii) बड़े घर की लड़की सरिता को कहा गया है जो धनीमल जी की सबसे छोटी पुत्री है जिसका विवाह अमित के साथ तय हुआ है। वह अधिक सुंदर नहीं है, पढ़ाई में भी अच्छी नहीं है तथा उसे फैशन में रहने की आदत है। उसे पेंटिंग और ड्राइविंग का शौक है। वह अपने पिता की लाड़ली पुत्री है।
- (iii) अमित अपनी शादी में कोई रुचि नहीं ले रहा था। पूछने पर कह देता था कि जैसा आप उचित समझें। वह इसलिए सहमत नहीं था

क्योंकि उसे लगता था कि बड़े घर की बेटी माता-पिता की सेवा नहीं कर पायेगी। धनीमल जी ने शादी के प्रस्ताव के साथ-साथ यह लालच दिया कि वह अपनी बेटी को पाँच लाख रुपए देंगे तथा यह भी कहा कि मरने के बाद सब कुछ मेरी तीन लड़कियों का है। उन्होंने मायाराम जी को धन का लालच दिया।

- (iv) आजकल विवाह के रीति रिवाजों में आडंबर दिखावा और नये-नये खर्चे जुड़ते जा रहे हैं। बड़े-बड़े पार्टी हॉल, विभिन्न प्रकार के खाद्य व्यंजन, सौन्दर्य प्रसाधन आदि पर मध्यमवर्गीय परिवार भी दिखावा करने लगा है। एक मध्यमवर्गीय परिवार में जहाँ पहले तीन चार सौ लोग आमंत्रित होते थे आज उनकी संख्या हजार के करीब पहुँच चुकी है।

Answer 14.

- (i) वक्ता माँ है। यह वाक्य वह अपनी बहू और अतुल की पत्नी से कह रही है। जो संस्कारों के बन्धन में जकड़ी एक हिन्दू नारी है।
- (ii) यह कथन अविनाश यानि माँ के बड़े बेटे का है। अविनाश अपनी माँ के संस्कारों की जकड़न के कारण अलग रहने को मजबूर हो गया। विजातीय लड़की से विवाह करना, जातिवाद की समर्थक माँ अपना नहीं पाती है। अतः संस्कारों के गुलाम बन जाना सबसे बड़ा शत्रु है।
- (iii) वह अपने मनमुताबिक जीवन नहीं जी सकी और अपने पुत्र से अलग होकर दुःखी जीवन जी रही थी। वह नवीन बातों को अपना नहीं पाई। कुल, धर्म, जातिवाद जैसी बातों की कट्टर समर्थक बनी रही। साथ में रह रहे दूसरे बहू बेटे की निकटता भी प्राप्त नहीं कर सकी।
- (iv) एकांकी द्वारा उन्होंने बताया है कि कई बार हमारे संस्कार हमारी बेड़ियाँ बन जाते हैं। उनके दास बन हम अपनी भावनाओं का गला घोट देते हैं। इसलिए आज के बदलते आधुनिक समाज में सही जीवन व्यतीत करने के लिए जात-पात और रूढ़िवादिता से अलग होकर नये परिवेश में जीना चाहिए। अतः संस्कार और भावना एकांकी के माध्यम से एकांकीकार ने यह स्पष्ट करने का प्रयास किया है कि यदि रिश्तों को बनाए रखने हेतु हमें अपने संस्कारों व परम्पराओं से समझौता करना पड़े तो अवश्य करना चाहिए। भावनाएँ सदैव संस्कारों से अधिक महत्वपूर्ण होती हैं।

Answer 15.

- (i) वक्ता दुर्योधन है। वह जानता था कि महाभारत के युद्ध के लिए पाण्डव उसे ही दोषी मानेंगे। युद्ध का कारण, पाण्डव उसकी राजहठ मानकर उसकी जान लेना चाहते हैं। दुर्योधन ने पाण्डवों को बहुत कष्ट दिया था। वे उसे जिंदा नहीं छोड़ेंगे।
- (ii) वक्ता अर्थात् दुर्योधन असहाय इसलिए हो गया था क्योंकि उसकी सारी सेना मारी जा चुकी थी। वह स्वयं अस्त्र-शस्त्र से विहीन हो गया था, उसका कवच कट चुका था। वह थक चुका था। उसका मनोबल टूट चुका था। पाण्डवों के साथ युद्ध करने का उसमें साहस नहीं था। हाँ वह वास्तव में असहाय था क्योंकि वह अकेला पड़ गया था, घायल तथा निहत्था भी था एवम् मनोबल भी कमजोर पड़ गया था।

- (iii) श्रोता युधिष्ठिर हैं। श्रोता को तेरह वर्ष का समय देने की बात सरासर गलत है। पाण्डवों को दूर रखकर उन्हें शक्तिहीन करने के लिए, उनका मनोबल तोड़ने के लिए उसने यह युक्ति अपनाई थी। युधिष्ठिर जुये में हार गये थे और उन्हें तेरह वर्ष का वनवास काटना पड़ा था। जुये की शर्त के अनुसार इस अवधि में पहचाने जाने पर पुनः इतनी ही अवधि के लिये वन में रहना होगा। इसे समय देना नहीं कहा जा सकता, ये पाण्डवों के लिये दण्ड था। मैं इस कथन से सहमत नहीं हूँ।

- (iv) वक्ता ने जो समय दिया था उसका उद्देश्य था पाण्डवों को सत्ता से दूर रखना तथा तेरह वर्ष के समय में अपनी सैन्य शक्ति को बढ़ाना। लेकिन ऐसा करके भी वह अपनी योजना में सफल नहीं हो पाया। क्योंकि वन में रहकर भी पाण्डवों ने अपनी शक्ति बढ़ाई और निकट संबंधियों से मेलजोल बढ़ाया। देवताओं को प्रसन्न करके दिव्यास्त्र प्राप्त किए जिसके कारण वह महाभारत का युद्ध जीत सके।

Answer 16.

- (i) उपर्युक्त कथन की वक्ता पन्ना धाय है। वह चितौड़ के महाराणा सांगा के पुत्र कुँवर उदय सिंह की संरक्षिका है। वह सच्ची एवं कर्तव्यनिष्ठ सेविका है। राजभक्त है, ममतामयी है, बलिदानी और त्यागी, बुद्धिमान एवं दूरदर्शी है।
- (ii) नाच-रंग का आयोजन 'महाराणा संग्रामसिंह के छोटे भाई पृथ्वीसिंह के दासी-पुत्र बनवीर ने करवाया था। उसका उद्देश्य था कि नगर के लोग नाच-रंग में डूबे रहेंगे और वह उदय सिंह को मार सकेगा, क्योंकि उसके रहते बनवीर कभी राजा नहीं बन सकता था। अपनी इस महत्वाकांक्षा की पूर्ति के लिए वह सोते हुए विक्रमादित्य की हत्या कर देता है फिर कुँवर उदयसिंह की हत्या करने के लिए मयूर-पक्ष कुण्ड में असमय ही दीपदान का आयोजन करता है।
- (iii) बनवीर महाराणा के भाई पृथ्वीसिंह का दासी पुत्र है। वह अत्यंत क्रूर, विलासी और धूर्त किस्म का व्यक्ति है जो राज्य के लालच में पहले विक्रमादित्य की हत्या करता है फिर कुँवर उदय सिंह को मारना चाहता है जिससे बिना किसी बाधा के राज्य कर सके।
- (iv) इस एकांकी के लिए दीपदान शीर्षक सर्वथा उपयुक्त एवं सार्थक है। क्योंकि, किसी भी रचना का शीर्षक उसकी कथा के मूल के निकट उद्देश्यपूर्ण, संक्षिप्त एवं रोचक होना चाहिए। इस शीर्षक में पूरी कथा का सार निहित है। क्योंकि बनवीर उदयसिंह को मारने के लिए मयूरपंख नामक कुंड में तुलजा भवानी की पूजास्वरूप दीपदान का उत्सव आयोजित करता है तथा नाच-रंग का कार्यक्रम आयोजित करता है। उसकी आड़ में वह उदयसिंह को मारने का प्रयास करता है, लेकिन पन्ना धाय के कारण उसका षड्यंत्र पूरा नहीं हो पाता है। पन्ना अपने पुत्र चंदन का बलिदान कर देती है। चितौड़ के दीपक को बचाने के लिए अपने कुल के दीपक (चंदन) को दान कर देती है, इसलिए शीर्षक सार्थक है। इस एकांकी के माध्यम से नागरिक के कर्तव्य (राष्ट्र की सुरक्षा) को सफलता से दिखाया है। देश प्रेम की भावना की शिक्षा दी है। इस एकांकी में एकांकीकार ने शिक्षा दी है; कि राष्ट्रप्रेम पुत्रप्रेम से बड़ा और महान है।



QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics: [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिंदी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- पुस्तकें ज्ञान का भण्डार होती हैं तथा हमारी सच्ची मित्र एवं गुरु भी होती हैं। हाल ही में पढ़ी गई अपनी किसी पुस्तक के विषय में बताते हुए लिखिए कि वह आपको पसंद क्यों आई और आपने उससे क्या सीखा ?
- 'पर्यावरण है तो मानव है' विषय को आधार बनाकर पर्यावरण सुरक्षा को लेकर आप क्या-क्या प्रयास कर रहे हैं? विस्तार से लिखिए।
- कम्प्यूटर तथा मोबाइल मनोरंजन के साथ-साथ हमारी जरूरत का साधन अधिक बन गए हैं। हर क्षेत्र में इनसे मिलने वाले लाभों तथा हानियों का वर्णन करते हुए, अपने विचार लिखिए।
- अरे मित्र! "तुमने तो सिद्ध कर दिया कि तुम ही मेरे सच्चे मित्र हो।" इस पंक्ति से आरंभ करते हुए कोई कहानी लिखिए।
- प्रस्तुत चित्र को ध्यान से देखिए और चित्र को आधार बनाकर उसका परिचय देते हुए कोई लेख, कहानी अथवा घटना लिखिए जिसका सीधा व स्पष्ट संबंध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below : [7]

निम्नलिखित में से किसी एक विषय पर हिंदी में लगभग 120 शब्दों में पत्र लिखिए :

- आपके क्षेत्र में एक ही साधारण सा सरकारी अस्पताल है, जिसके कारण आम जनता को बहुत अधिक परेशानियों का सामना करना

पड़ रहा है। उन परेशानियों का उल्लेख करते हुए एक और सुविधायुक्त सरकारी अस्पताल खुलवाने का अनुरोध करते हुए स्वास्थ्य अधिकारी को पत्र लिखिए।

- ओलंपिक में अपने देश के बढ़ते कदम देखकर आपको बहुत ही प्रसन्नता हो रही है। इस वर्ष के ओलंपिक की उपलब्धियों को बताते हुए अपने मित्र को पत्र लिखिए।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे गए प्रश्नों के उत्तर हिंदी में लिखिए। उत्तर यथासंभव आपके अपने शब्दों में होने चाहिए :

पंजाब में उस वर्ष भयंकर अकाल पड़ा था। उन दिनों वहाँ महाराजा रणजीत सिंह का राज था। उन्होंने यह घोषणा करवा दी, "महाराज के आदेश से शाही भण्डार-गृह हर जरूरतमंद के लिए खुला है। प्रत्येक जरूरतमंद एक बार में जितना उठा सके, ले जाये।" यह घोषणा सुनते ही गाँवों व शहरों से जरूरतमंदों की भीड़ राजमहल में उमड़ पड़ी।

उन दिनों लाहौर में एक सद्गृहस्थ बूढ़े सज्जन रहते थे। वे कट्टर सनातनी विचारों के थे। उन्होंने जीवन में कभी भी किसी के आगे अपना हाथ नहीं फैलाया था। अँधेरा होने पर वह शाही भण्डार के दरवाजे पर पहुँचे। द्वार खुला था, किसी तरह की कोई जाँच-पड़ताल नहीं हुई। उन्होंने बड़े संकोच से अपनी चादर को फैलाया, उसके कोने में थोड़ा-सा अनाज बाँध लिया। ज्यादा अनाज उठाना उनके लिए मुश्किल था। इतने में पगड़ी बाँधे एक व्यक्ति वहाँ आया। उसने कहा, "भ्राताजी आपने तो काफी कम अनाज लिया है।" बूढ़े सज्जन ने कहा, "असल में मैं बूढ़ा लाचार हूँ। इस अकाल में तो थोड़ा अनाज लेना ही सही है, जिससे सब जरूरतमंदों को मिल जाये।"

उस व्यक्ति ने बूढ़े की गठरी खोल दी। उसमें भरपूर अनाज भर दिया। बूढ़े सज्जन ने कहा, "मैं इतना अनाज नहीं उठा सकता और न ही इसकी मजदूरी का पैसा दे सकता हूँ।" इतने में उस अजनबी ने बूढ़े की गठरी अपने कंधों पर ले ली और बूढ़े के पीछे-पीछे चल पड़ा। जब वे बूढ़े के घर के द्वार पर पहुँचे तो वहाँ दो बच्चे उनकी प्रतीक्षा कर रहे थे। उन्हें देखते ही वे बोले—“बाबा, कहाँ चले गये थे?” बूढ़ा खामोश रहा। अजनबी ने कहा, "घर में कोई बड़ा लड़का नहीं है?" बूढ़ा बोला, "लड़का था लेकिन काबुल की लड़ाई में शहीद हो गया। अब बहू है तथा मेरे ये पोते हैं।" वह अजनबी बोला, "भाई जी धन्य हैं आप, जिनका बेटा देश के लिए शहीद हो गया।"

रोशनी में बूढ़े ने उस अजनबी को पहचान लिया। वे खुद महाराज रणजीत सिंह थे। बूढ़े ने पोतों से कहा, “इनके सामने दण्डवत प्रणाम करो।” और स्वयं भी प्रणाम करने लगे और थोड़ी देर बाद बोले, “आज मुझे बड़ा पाप हो गया। आपसे बोझा उठवाया।” “नहीं, यह पाप नहीं, मेरा सौभाग्य था कि मैं शहीद के परिवार की सेवा कर सका। आप सबकी सेवा करना मेरा फर्ज है। अब आप जीवन भर हमारे साथ रहिए और हमें कृतार्थ कीजिए।”

- (i) राज्य को किस विपत्ति का सामना करना पड़ा था? उन दिनों वहाँ के राजा कौन थे और उन्होंने उस समस्या का क्या समाधान निकाला? [2]
- (ii) राजा ने राज्य में क्या घोषणा करवाई और क्यों? [2]
- (iii) बूढ़े आदमी के बारे में आप क्या जानते हैं? उनका पूर्ण परिचय दीजिए। [2]
- (iv) बूढ़े आदमी ने थोड़ा-सा अनाज ही क्यों लिया था? कारण स्पष्ट करते हुए बताइए कि उस अजनबी व्यक्ति ने उस बूढ़े की कैसे सहायता की? [2]
- (v) इस गद्यांश से मिलने वाली शिक्षाओं पर प्रकाश डालिए। [2]

Question 4.

Answer the following according to the instructions given :

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- (i) निम्नलिखित शब्दों में से किन्हीं किसी एक शब्द के दो पर्यायवाची शब्द लिखिए— [1]
आनंद, पुत्र, राक्षस।
- (ii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विलोम लिखिए— [1]
आलस्य, सदाचार, सामिष, कृत्रिम।
- (iii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों को शुद्ध कीजिए— [1]
प्रतीष्ठा, गृन्थ, परीस्थती।
- (iv) निम्नलिखित में से किसी एक मुहावरे की सहायता से वाक्य बनाइये— [1]
अपना उल्लू सीधा करना, हाथ मलना।
- (v) कोष्ठक में दिए गए निर्देशानुसार वाक्यों में परिवर्तन कीजिए— [1]
- (a) विद्यार्थी को जानने की इच्छा रखने वाला होना चाहिए। (रेखांकित शब्दों के स्थान पर एक शब्द का प्रयोग कीजिए।) [1]
- (b) इतनी आयु होने पर भी वह विवाहित नहीं है। ('नहीं' हटाइए परंतु वाक्य का अर्थ न बदले।) [1]
- (c) रात में सर्दी बढ़ जायेगी। (अपूर्ण वर्तमानकाल में बदलिए) [1]
- (d) अन्याय का सब विरोध करते हैं। (रेखांकित का विशेषण लिखते हुए वाक्य पुनः लिखिए) [1]

SECTION 'B' (40 Marks)

Attempt four questions from this Section.

You must answer at least **one** question from each of the two books you have studied and any two other questions.

साहित्य सागर—संक्षिप्त कहानियाँ (Sahitya Sagar—Short Stories)

Question 5.

Read the extract given below and answer in **Hindi** the questions that follow:

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“उसने कोई बहाना न बनाया। चाहता तो कह सकता कि यह साजिश है। मैं नौकरी नहीं करना चाहता इसीलिए हलवाई से मिलकर मुझे फँसा रहे हैं, पर एक और अपराध करने का साहस वह न जुटा पाया। उसकी आँखें खुल गई थीं।”

[बात अठन्नी की—सुदर्शन]

[Baat Athanni Ki—Sudarshan]

- (i) किसे कौन फँसा रहा था? उसने क्या अपराध किया था? [2]
- (ii) रसीला कौन है? उसका परिचय दीजिए। [2]
- (iii) हमें अपने नौकरों से कैसा व्यवहार करना चाहिए? कहानी के आधार पर उदाहरण देकर समझाइए। [3]
- (iv) इस कहानी में लेखक ने समाज की कौन-सी बुराई को प्रकट करने का प्रयास किया है? क्या वे अपने प्रयास में सफल हुए? समझाकर लिखिए। [3]

Question 6.

Read the extract given below and answer in **Hindi** the questions that follow :

निम्नलिखित गद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिंदी में लिखिए :

“नेताजी सुंदर लग रहे थे। कुछ-कुछ मासूम और कमसिन। फौजी वर्दी में। मूर्ति को देखते ही ‘दिल्ली चलो’ और ‘तुम मुझे खून दो……’ वगैरह याद आने लगते थे। इस दृष्टि में यह सफल और सराहनीय प्रयास था। केवल एक चीज की कसर थी जो देखते ही खटकती थी।”

[नेता जी का चश्मा—स्वयं प्रकाश]

[Netaji Ka Chasma—Swayam Prakash]

- (i) मूर्ति किसकी थी और वह कहाँ लगाई गई थी? [2]
- (ii) यह मूर्ति किसने बनाई और इसकी क्या विशेषताएँ थीं? [2]
- (iii) मूर्ति में क्या कमी थी? उस कमी को कौन पूरा करता था और कैसे? [3]
- (iv) नेताजी का परिचय देते हुए बताइए कि चौराहे पर उनकी मूर्ति लगाने का क्या उद्देश्य रहा होगा? क्या उस उद्देश्य में सफलता प्राप्त हुई? स्पष्ट कीजिए। [3]

Question 7.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

“बड़े भोले हैं आप सरकार ! अरे मालिक, रूप-रंग बदल देने से तो सुना है आदमी तक बदल जाते हैं। फिर ये तो सियार है।”

[भेड़ें और भेड़िए— हरिशंकर परसाई]

[Bheden Aur Bhediye -Harishankar Parsai]

- (i) उपर्युक्त कथन कौन, किससे क्यों कह रहा है ? [2]
 (ii) बूढ़े सियार ने भेड़िए का रूप किस प्रकार बदला ? [2]
 (iii) यह कैसी कहानी है, बूढ़े सियार ने किन बातों का खयाल रखने के लिए कहा ? क्यों कहा ? [3]
 (iv) सियारों को किन-किन रंगों में रंगा गया ? वे किसके प्रतीक थे ? इस कहानी से आपको क्या शिक्षा मिलती है ? [3]

साहित्य सागर—पद्य

(Sahitya Sagar—Poems)

Question 8.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

“मेघ आए बड़े बन-ठन के, सँवर के
 आगे-आगे नाचती-गाती बयार चली,
 दरवाजे-खिड़कियाँ खुलने लगीं गली-गली,
 पाहुन ज्यों आये हों, गाँव में शहर के !
 मेघ आए बड़े बन-ठन के, सँवर के !”

[मेघ आए — सर्वेश्वर दयाल सक्सेना]

[Megh Aaye - Sarveshwar Dayal Saxena]

- (i) मेघ कहाँ आए हुए हैं ? कवि को मेघ देखकर क्या प्रतीत हो रहा है ? [2]
 (ii) ‘बयार’ शब्द से आप क्या समझते हैं ? कवि इसके बारे में क्या बताना चाहता है ? [2]
 (iii) दरवाजे-खिड़कियाँ क्यों खुलने लगी हैं ? किसका स्वागत कहाँ पर किस प्रकार किया जाने लगा है ? कवि के भाव स्पष्ट कीजिए। [3]
 (iv) कविता का केन्द्रीय भाव लिखिए। [3]

Question 9.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

गुरु गोविन्द दोऊ खड़े काके लागूँ पायँ।
 बलिहारी गुरु आपनो जिन गोविंद दियौ बताय।।
 जब मैं था तब हरि नहीं, अब हरि है मैं नाहि।
 प्रेम गली अति साँकरी, तामे दो न समाहि।।

[साखी—कबीर दास]

[Sakhi - Kabir Das]

- (i) कवि किसके बारे में क्या सोच रहे हैं ? [2]

- (ii) कवि किसके ऊपर न्योछावर (समर्पण) हो जाना चाहते हैं तथा क्यों ? [2]

- (iii) ईश्वर का वास कहाँ नहीं होता है ? कवि हमें क्या त्यागने की प्रेरणा दे रहे हैं ? कवि का संक्षिप्त परिचय देते हुए बताइए। [3]

- (iv) ‘साँकरी’ शब्द का क्या अर्थ है ? प्रेम गली से कवि का क्या तात्पर्य है ? उसमें कौन दो एक साथ नहीं रह सकते हैं समझाइए। [3]

Question 10.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित पद्यांश को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए।

सुनूँगी माता की आवाज
 रहुँगी मरने को तैयार।
 कभी भी उस वेदी पर देव
 न होने दूँगी अत्याचार।।
 न होने दूँगी अत्याचार
 चलो, मैं हो जाऊँ बलिदान
 मातृ मंदिर से हुई पुकार,
 चढ़ा दो मुझको, हे भगवान।।

[मातृ मंदिर की ओर — सुभद्रा कुमारी चौहान]

[Matri Mandir Ki Or - Subhadra Kumari Chauhan]

- (i) ‘मातृ मंदिर’ से क्या तात्पर्य है ? वहाँ से कवयित्री को क्या पुकार सुनाई दे रही है ? [2]
 (ii) कवयित्री अपनी मातृभूमि की रक्षा के लिए क्या करने को तैयार हैं और क्यों ? [2]
 (iii) मंदिर तक पहुँचने के मार्ग में कवयित्री को किन-किन कठिनाइयों का सामना करना पड़ता है ? [3]
 (iv) प्रस्तुत पद्यांश में कवयित्री की किस भावना को दर्शाया गया है ? वह इस कविता के माध्यम से पाठकों को क्या संदेश देना चाहती है ? [3]

नया रास्ता (सुषमा अग्रवाल)

(Naya Raasta—Sushma Agarwal)

Question 11.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

माँ को लगा, शायद अमित सरिता के रिश्ते को तैयार नहीं है। इसलिए वह बोली, “बेटे, व्यवहार का तो किसी को भी पता नहीं है। न, सरिता के बारे में ही कुछ कहा जा सकता है न ही मीनू के बारे में व्यवहार का तो साथ रहने पर ही पता चलता है।”

- (i) माँ को कैसे पता चलता है कि अमित सरिता के रिश्ते के लिए तैयार नहीं है ? [2]
 (ii) अमित के पिता मायाराम जी सरिता के रिश्ते को क्यों नहीं करना चाहते हैं ? [2]
 (iii) अमित और सरिता का रिश्ता तय होने के लिए माँ किसको और क्यों उकसाती है ? माँ की ऐसी धारणा से उनके स्वभाव के बारे में क्या पता चलता है ? समझाकर लिखिए। [3]

- (iv) शादी के विषय में समाज की क्या परम्परा है? आप इससे कहाँ तक सहमत हैं? स्पष्ट कीजिए। [3]

Question 12.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

“मीनू ने अमित के कमरे में प्रवेश किया, तो देखा कि अमित अपने पलंग पर लेटा हुआ है। मीनू को देखकर उन्होंने उसे प्रेमपूर्वक बैठाया। उसे देखकर अमित के मुरझाये चेहरे पर भी खुशी की लहर दौड़ गई।”

- (i) मीनू अमित को देखने कहाँ गई थी? जाते समय वह मन में क्या सोच रही थी? [2]
- (ii) कमरे में प्रवेश करते ही उसने क्या देखा? अमित की माँ ने मीनू से क्या पूछा? उसने क्या उत्तर दिया? [2]
- (iii) मीनू के वकालत पास करने पर अमित की माँ को विशेष खुशी क्यों हो रही थी? क्या उन्हें अपनी गलती का अहसास हो गया था? तर्कपूर्ण उत्तर दीजिए। [3]
- (iv) मीनू के हृदय में बचपन से ही किसके प्रति दया की भावना थी? वह उनकी किस प्रकार सहायता करने का निश्चय कर रही है? [3]

Question 13.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

अमित का नाम सुनते ही दरवाजे की ओर पीठ किए बैठी मीनू ने मुड़कर देखा तो वह आश्चर्यचकित रह गई। मीनू जब भी अमित को देखती, उसके मन में अजीब सी घृणा उत्पन्न हो जाती। अमित व उसके सभी मित्र वहाँ आ चुके थे, परन्तु मीनू अभी भी सोच में डूबी हुई थी।

- (i) मीनू इस समय कहाँ थी? वहाँ अमित से उसकी कैसे मुलाकात हो गई? [2]
- (ii) मीनू और अमित के बीच क्या सम्बन्ध था? वह उससे घृणा क्यों करती थी? [2]
- (iii) उसे वहाँ किस सच्चाई का पता चला? उन बातों का उस पर क्या प्रभाव पड़ा? [3]
- (iv) “मीनू परिस्थितियों से हार मानने वाली कोई साधारण नारी नहीं थी” — स्पष्ट कीजिए कि उसने अपने जीवन को कैसे नई दिशा दी? [3]

एकांकी संचय

(Ekanki Sanchay)

Question 14.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

“दहेज देना तो दूर, बारात की खातिर भी ठीक से नहीं की गई। मेरे नाम पर जो धब्बा लगा, मेरी शान में जो ठेस पहुँची, भरी बिरादरी

में जो हँसी हुई, उस करारी चोट का घाव आज भी हरा है। जाओ, कह देना अपनी माँ से कि अगर बेटी को विदा कराना चाहती है तो पहले उस घाव के लिए मरहम भेजे।”

[बहू की विदा—विनोद रस्तोगी]

[Bahu Ki Vida- Vinod Rastogi]

- (i) प्रस्तुत कथन किसने, किससे कहा? सन्दर्भ सहित उत्तर लिखिए। [2]
- (ii) ‘मरहम’ का क्या अर्थ है? यहाँ मरहम से क्या तात्पर्य है? स्पष्ट कीजिए। [2]
- (iii) वक्ता के चरित्र की विशेषताएँ लिखिए। [3]
- (iv) प्रस्तुत एकांकी में किस समस्या को उठाया गया है? उस समस्या को दूर करने के लिए क्या-क्या कदम उठाये जा रहे हैं? अपने विचार दीजिए। [3]

Question 15.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए :

‘प्राण जायें पर वचन न जायें’ —यह हमारे जीवन का मूलमन्त्र है। जो तीर तरकश से निकलकर कमान से छूट गया, उसे बीच में लौटाया नहीं जा सकता। मेरी प्रतिज्ञा कठिनाई से पूरी होगी, यह मैं जानता हूँ और इस बात की हाल के युद्ध में पुष्टि भी हो चुकी है कि हाड़ा जाति बीरता में हम लोगों से किसी प्रकार हीन नहीं है।”

[मातृभूमि का मान —हरिकृष्ण ‘प्रेमी’]

[Matri Bhoomi ka Man- Hari Krishna 'Premi']

- (i) उपर्युक्त कथन के वक्ता और श्रोता का संक्षिप्त परिचय दीजिए। [2]
- (ii) वक्ता ने क्या प्रतिज्ञा ली थी? कारण सहित लिखिए। [2]
- (iii) हाड़ा वंश के राजा कौन थे? हाड़ा लोगों की क्या विशेषताएँ थीं? उन पर प्रकाश डालिए। [3]
- (iv) ‘प्राण जायें पर वचन न जाये’ —इस कहावत का क्या अर्थ है? एकांकी के सन्दर्भ में समझाइए। [3]

Question 16.

Read the extract given below and answer in Hindi the questions that follow :

निम्नलिखित अवतरण को पढ़िए और उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए—

“मेरी आकांक्षा है कि सब डालियाँ साथ-साथ फलें-फूलें, जीवन की सुखद, शीतल वायु के स्पर्श से झूमें और सरसराएँ। विटप से अलग होने वाली डाली की कल्पना ही मुझे सिहरा देती है।”

[सूखी डाली—उपेन्द्र नाथ ‘अशक’]

[Sookhi Dali—Upendra Nath 'Ashk']

- (i) उपर्युक्त कथन कौन, किससे, किस सन्दर्भ में कह रहा है? [2]
- (ii) सब डालियाँ साथ-साथ फलने-फूलने से क्या आशय है? ‘डालियाँ’ शब्द किसके लिए प्रयुक्त हुआ है? [2]
- (iii) किसकी आकांक्षा है कि सब खुशहाल रहें और क्यों? इस एकांकी से आपको क्या शिक्षा मिलती है? [3]
- (iv) प्रस्तुत कथन से वक्ता की किस चारित्रिक विशेषता का पता चलता है? अपने विचार भी प्रस्तुत कीजिए। [3]

ANSWERS

SECTION 'A'

Answer 1.

(i) “पुस्तकें ज्ञान का भण्डार होती हैं”

सृष्टि के आरंभिक काल में आदिमानव को भाषा ज्ञान नहीं था, वह संकेतों से अपने भावों की अभिव्यक्ति करता था। शनैः-शनैः भाषा का आविष्कार हुआ और लोग अपनी इच्छाओं व भावनाओं को समझने व समझाने में समर्थ हो सके। इस विकास के पश्चात् लेखन क्रिया का भी विकास हुआ और पुस्तकें लिखी जाने लगीं। पुस्तकें ज्ञान का भण्डार होती हैं तथा पुस्तकों द्वारा ही हमारा बौद्धिक व मानसिक विकास संभव है। समाज के परिष्कार, व्यावहारिक ज्ञान में वृद्धि एवं कार्यकुशलता व कार्यक्षमता के पोषण में भी पुस्तकों की महत्वपूर्ण भूमिका होती है।

पुस्तकों के क्षेत्र में हमारा देश भारतवर्ष तो विश्व गुरु के नाम से जाना जाता है। सर्वप्रथम वेद, पुराण तथा उपनिषद् जैसे कितने ही अनगिनत धर्म ग्रंथ हमारे देश की अमूल्य संपत्ति हैं। आज की पीढ़ी पुस्तकों के अभाव में कैसे जान सकती थी कि रामकृष्ण, स्वामी विवेकानंद, ऋषि वशिष्ठ जैसे असंख्य महापुरुष इस देश में उत्पन्न हुए। कौन जानता कि महर्षि दधीचि ने देवताओं की प्राण रक्षा के लिए सजीव अपने प्राण त्यागकर अपनी अस्थियाँ दान कर दीं। आज देश विकास की ऊँचाइयों को छू रहा है उसका श्रेय उन महान वैज्ञानिकों को है जो इतिहास के पन्नों में अपना नाम अमर कर गये हैं। कौन जानता कि सोने की चिड़िया कहे जाने वाले भारत को मुगलों और अंग्रेजों ने किस प्रकार लूटकर भारतीयों पर असंख्य अत्याचार किये। खगोल, भूगोल, अध्यात्म, विज्ञान कोई भी क्षेत्र क्यों न हो पुस्तकों के अतिरिक्त कोई विकल्प नहीं है।

जब मन उदास हो श्रीमद्भागवद्गीता उठाकर पढ़ लीजिए। मन के सारे विषाद मिट जाएँगे। श्रीभागवद् पुराण, श्रीरामचरितमानस पढ़ लीजिए मन बाग-बाग हो जाएगा। स्वामी विवेकानंद, दयानंद, रामकृष्ण परमहंस जैसे महापुरुषों को पढ़ लीजिए, ऐसा अनुभव होने लगेगा कि मनुष्य राम, रहीम, अल्लाह-खुदा के भेदभाव में क्यों फँसा है—भगवान ने तो इंसान बनाया है जाति व धर्म तो हमारी देन है।

मैंने श्री डोंगरा जी महाराज का श्रीमद्भागवद् महापुराण पढ़ा व सुना है। इसकी कथा मनुष्य को मृत्यु के भय से छुटकारा दिलाने वाली है। यह एक अमर कथा है, जिसमें भगवान श्रीकृष्ण की लीलाओं का वर्णन है, जो अमृत से भी उत्कृष्ट है। इस कथा में महाभारत के पाँच पाँडवों में से एक अर्जुन के पुत्र अभिमन्यु के पुत्र परीक्षित की कथा है। कलियुग के प्रभाव में आकर परीक्षित ने प्यास से पीड़ित होने के कारण तप में लीन शमीक ऋषि के गले में मरा हुआ सर्प डाल दिया। इस घटना से क्रोधित होकर ऋषि पुत्र शृंगी ने परीक्षित को शाप दे दिया कि आज से सातवें दिन तक्षक नाम का सर्प आकर परीक्षित को काटेगा और उसकी मृत्यु हो जाएगी।

परीक्षित ने इस शाप से मुक्ति का उपाय ढूँढ़ा। उन्होंने सात दिन तक एक ही आसन पर बैठकर श्रीमद्भागवत महापुराण की कथा मुनि शुकदेव जी से सुनी और मृत्यु के भय से मुक्त हो गये। उन्हें ऐसा प्रतीत हुआ कि मरता शरीर है तथा आत्मा अमर है। अतः तक्षक का भय उन्हें नहीं रहा।

यह कथा बड़ी रसमयी है। भगवान श्रीकृष्ण का रूप मनोरंजक है। श्रोता इस कथा को सुनकर अति आनंदित होते हैं तथा मन पूर्णरूप से आह्लादित हो जाता है।

“पुस्तकें ज्ञान का भण्डार होती हैं” यह बात शत-प्रतिशत सही है। दूसरे शब्दों में हम यह कह सकते हैं कि पुस्तकें हमारे ज्ञान की धरोहर हैं जो एक पीढ़ी नहीं अपितु पीढ़ी दर पीढ़ी अतीत काल के ज्ञान का आवंटन करती हुई, इस परंपरा को सजीव बनाए रखती हैं। यह हमारी सच्ची गुरु व सच्ची मित्र होती हैं।

(ii) “पर्यावरण है तो मानव है”

“जीवन का आधार बनाओ, विश्व में हरियाली लाओ।

क्या बिना पेड़ों के जी पाओगे, पशु-पक्षियों को भी रुलाओगे।

देख लेना एक दिन मानव रोता रह जायेगा

जब जमीन पर पेड़ पौधे नहीं होंगे

हर आँख में आँसू बहते होंगे

साँस लेने के लिए भी मानव तरस जायेगा।”

उपर्युक्त कविता का एक-एक शब्द खतरे की घंटी के समान है। कवि चीख-चीखकर समझाना चाहता है। अब भी समझ जाओ नहीं तो साँस की घुटन मौत बन जायेगी। पानी नहीं मिलेगा, प्यास मर जाओगे। जानवर चारे व पानी के अभाव में दम तोड़ देंगे।

प्रकृति स्वयं को असंख्य रूपों में अभिव्यक्त करती है। इसकी शुद्धता, सात्विकता, सुंदरता, विशालता, असीमता तथा तेजस्विता मानव मन में नाना प्रकार की भावना उत्पन्न करती है। प्रकृति का दूसरा नाम ही पर्यावरण है। हमारा पर्यावरण शुद्ध रहे तभी हम जीवित रह सकते हैं। निरोगी रह सकते हैं।

पर्यावरण सुरक्षा को लेकर आजकल प्रत्येक नागरिक प्रयासरत है। मैं भी इस दिशा में प्रयासरत हूँ। मैंने अपने मित्रों के साथ मिलकर ‘पर्यावरण मित्र’ नाम से एक टोली बनाई है जो जगह-जगह पर जाकर स्वच्छता अभियान चलाती है तथा झुग्गी-झोंपड़ियों में जाकर उन्हें स्वच्छता रखने की प्रेरणा देती है। हमारी टोली को लोगों द्वारा बहुत पसंद किया जा रहा है तथा हमारे प्रयास से पर्यावरण को स्वच्छ रखने में सहायता मिली है। कुछ समाजसेवी संस्थाओं की ओर से हमें ऐसे डस्टबिन निःशुल्क दिए गए हैं जिन्हें हमने अपने नगर के विभिन्न स्थानों पर रखा है, जिससे कि लोग बेकार की चीजें, कागज के टुकड़े, फलों के छिलके आदि इसमें डालें।

हमारा यह प्रयास बहुत सफल रहा है तथा हमारी टोली ‘पर्यावरण मित्र’ के साथ बहुत से लोग जुड़ते जा रहे हैं। हम ‘नुकड़ नाटकों’ के द्वारा भी लोगों में स्वच्छता के प्रति जागरूकता लाने का प्रयास कर रहे हैं। सप्ताह में एक दिन हमारी टोली विभिन्न क्षेत्रों में जाकर श्रमदान करके स्वच्छता अभियान चलाती है। हमारे प्रयास को देखकर उन क्षेत्रों के निवासी भी स्वच्छता अभियान में संलग्न हो जाते हैं। हमारी टोली द्वारा पर्यावरण को स्वच्छ रखने के लिए एक और विशेष प्रयास किया गया है—वह है वृक्षारोपण। वृक्षारोपण पर्यावरण प्रदूषण को रोकने के लिए सर्वोच्च उपाय माना गया है क्योंकि वृक्ष ही हमसे अशुद्ध वायु लेकर हमें शुद्ध वायु प्रदान करते हैं और पर्यावरण को स्वच्छ रखते हैं। हमने अपने अध्यापकों की सहायता से नगर निगम के उद्यान विभाग की ओर से अनेक

पौधे प्राप्त कर लिए हैं, जिन्हें हम अपने आध्यापकों के मार्गदर्शन में ही शहर में जगह-जगह पर लगाते हैं तथा वहाँ के लोगों को भी वृक्षारोपण के लिए प्रेरित करते हैं। हमारे इस प्रयास की बहुत सराहना की गई है।

पर्यावरण शुद्धि के लिए सरकार के भी प्रयास प्रबल हैं। सरकार ने पुरानी गाड़ियों को नगर से बहिष्कृत किया है। फैक्ट्रियाँ नगर से बाहर सुदूर क्षेत्रों में लगायी गयी हैं। उत्तर प्रदेश के मुख्यमंत्री जी ने नदियों को शुद्ध करने के कड़े निर्देश दिये हैं। इस क्षेत्र में हम सब मिलकर प्रयास करेंगे तभी मनुष्य जीवित रहेगा।

(iii) “कम्प्यूटर एवं मोबाइल की लाभ और हानियाँ”

आज का युग वैज्ञानिक युग है। वैज्ञानिक युग का अभिप्राय है कि इस युग में अनेकानेक चमत्कारी आविष्कार हुए, जिनसे जनमानस का जीवन जटिलताओं से सरलता की ओर मुड़ने लगा। उसमें जीवन के प्रति आकर्षण उत्पन्न हुआ। कम्प्यूटर एक ऐसा ही अनोखा बल्कि मानव जीवन में अत्यंत अपरिहार्य यंत्र है जिसके बिना एक कदम भी आगे नहीं बढ़ा जा सकता। इसी के छोटे भाई के रूप में मोबाइल के आविष्कार ने तो लोगों की दिनचर्या ही बदल दी। आधुनिक समय में एक रिक्शे वाला भी अपना कॉलर उतना ही ऊँचा करके चलता है जितना एक मँहगी कार में बैठा अरबपति। वह अपने छोटे से मोबाइल से फोन तो करता ही है परंतु इसके अतिरिक्त क्रिकेट मैच की कमेंट्री, नेताजी का भाषण आदि के साथ-साथ गानों का भी भरपूर आनंद लेता है। उसे मोबाइल के उपयोग के सारे तरीके इसलिए आते हैं क्योंकि वह उन्हें सीखना चाहता है।

कम्प्यूटर एक तरह का यांत्रिक मस्तिष्क है। इसकी काम करने की गति बहुत तेज है। आज के युग में कोई क्षेत्र कम्प्यूटर से अछूता नहीं है। रेलवे, हवाई जहाज, बैंक, व्यापार, रीयल स्टेट, विद्यालय, विश्वविद्यालय आदि सभी क्षेत्रों में कम्प्यूटर का प्रयोग होता है। इस प्रकार हम कह सकते हैं कि जीवन में आने वाली हर आवश्यकता की पूर्ति कम्प्यूटर है। जरा-सा सर्वर डाउन हुआ नहीं कि लोग निकम्मे से हो जाते हैं। कम्प्यूटर के द्वारा इंटरनेट की सहायता से कई सोशल नेटवर्किंग साइट्स उपयोग की जा सकती हैं। संगीत सुनना, फिल्में देखना आदि भी कम्प्यूटर पर संभव है, कम्प्यूटर आवश्यकता के साथ-साथ मनोरंजन का भी साधन है। दूसरी ओर मोबाइल तो कम्प्यूटर से भी बढ़कर चमत्कारी है। छोटा-सा यंत्र वो करिश्मे दिखाता है कि लोग दंग रह जाते हैं। ट्विटर से तो सभी परिचित हैं। एक शिकायत ट्विटर पर प्रधानमंत्री जी को भेज दो, पुलिस तुरंत ही चली आयेगी। नोटबंदी के बाद मोबाइल फोन का कार्य अति प्रशंसनीय रहा है। कैशलेस बैंकिंग इसका अनूठा उपयोग है। इंटरनेट बैंकिंग, पेटीएम आदि ऐप्स के द्वारा घर बैठे यात्रा टिकट कराना, विभिन्न प्रकार के बिलों की अदायगी आदि सारे काम मोबाइल से घर बैठे हो सकते हैं। वीडियो कॉलिंग से अपने प्रियजनों से फेस टू फेस बातें करना, अपने प्रियजनों के शुभ-अशुभ समाचार प्राप्त करना सब कुछ मोबाइल पर संभव है। दूसरे शब्दों में हम कह सकते हैं कि मोबाइल एक चलता फिरता कम्प्यूटर है।

हर वस्तु के दो पहलू होते हैं—अच्छ व बुरा। उपर्युक्त वर्णन कम्प्यूटर व मोबाइल के लाभों की कहानी थी। इसके नुकसान भी बड़े खतरनाक होते हैं। लोग अपने मोबाइल को एक सुरक्षित यंत्र समझकर अपने सभी गोपनीय दस्तावेज उसमें दाखिल कर देते

हैं, लेकिन अगर दुर्भाग्यवश मोबाइल खो गया तो बैंक अकाउंट से पैसे उड़ जाते हैं, पासवर्ड के माध्यम से लोगों को बहुत अहम जानकारी मिल जाती है जो बहुत भयानक सिद्ध होती है। लड़कियों की अश्लील फोटो, ब्लू फिल्म अथवा बच्चों को अगवा करके उन्हें उत्पीड़ित करना भी सभी मोबाइल फोन और कम्प्यूटर के ही नुकसान हैं।

अतः यह कहना भी अति आवश्यक है कि जो दवा रोग दूर करने में सहायक होती है उसी का दुरुपयोग जीवन के लिए खतरा भी बन सकता है।

(iv) सच्चे मित्र पर आधारित कहानी

“अरे मित्र! तुमने तो सिद्ध कर दिया कि तुम्हीं मेरे सच्चे मित्र हो।” अपने मित्र राहुल से यह बात कहते हुये मेरी आँखें आँसुओं से भर आई।

बात उस समय की है जब पाकिस्तानियों ने हमारे देश के पाक अधिकृत क्षेत्र की एक बहुत ऊँची इमारत की रखवाली करने वाले अठारह जवानों की प्रातः छः बजे उस समय हत्या कर दी जब वे रातभर सीमा पर अपनी ड्यूटी पूरी करके सो रहे थे। उस समय देश में इस घटना से अफरा-तफरी मची हुई थी। पूरे विश्व में पाकिस्तान की इस काली करतूत की निंदा हो रही थी।

हमारे प्रधानमंत्री माननीय श्री नरेन्द्र मोदी जी के दिल में बड़ा दर्द था। हमारी सेना के अफसरों की नौद उड़ी हुई थी। सबके दिमाग में एक ही बात थी कि पाकिस्तान को इसका सबक कैसे सिखाया जाये? मेरे दोस्त ! उसी समय मेरी माताजी का मेरे पास फोन आया—बेटा ! पिताजी को डॉक्टर ने कैंसर की पहली स्टेज बताई है। मैं सुनकर काँप गया और मुझे लगा अब शायद मेरे पिताजी जीवित ना रहेंगे। मेरे सामने एक तरफ मेरे देश की सुरक्षा का कर्तव्य और दूसरी ओर मेरे पिता के जीवन का प्रश्न। मेरे लिए दोनों ही कर्तव्य महत्वपूर्ण थे।

मुझे उस समय वह दिन याद आया जब मैंने जेओसी (जूनियर ऑफिसर कमाण्ड) की शपथ ली थी तब हमें कहा गया था कि आज से आपके लिए देश पहले, परिवार बाद में है। फिर क्या था मुझे भारत माता की देहलीज (सीमा) याद आयी और पिता को भूल गया।

इसी बीच हमारे देश के माननीय प्रधानमंत्री व सेना के अफसरों ने पाकिस्तान पर सर्जिकल स्ट्राइक की योजना बना डाली, उसमें मैं भी एक सिपाही था। हम लोगों ने रातों-रात उनके अनगिनत ठिकानों पर बम बरसाये और लगभग 150 आतंकवादियों को मार गिराया। उन्होंने 18-20 मारे, हमने उनके कई गुने ज्यादा मारे।

जब सर्जिकल स्ट्राइक से मैं वापस आया तो मैंने अपने साहब से पिताजी के विषय में चर्चा करके बात करने की इच्छा व्यक्त की तो उन्होंने मुझे एक हफ्ते की छुट्टी देकर गाँव जाने के लिए कहा। मैं जब गाँव आया तो मुझे पता चला कि मेरी अनुपस्थिति में मेरे मित्र राहुल ने मेरा परिचय देकर पास के मिलिट्री अस्पताल में मेरे पिताजी का सफल इलाज कराया जिससे उनके कैंसर का खतरा समाप्त हो गया और वह धीरे-धीरे स्वास्थ्य लाभ कर रहे थे।

“दुनिया में मित्र तो बहुत होते हैं परंतु तुम्हारे जैसा मित्र किसी सौभाग्यशाली को ही मिलता है। अतः मैं बड़े गर्व से कह सकता हूँ कि तुमने वास्तव में सिद्ध कर दिया कि तुम ही मेरे सच्चे मित्र हो।”

(v)

चित्र प्रस्ताव

यह चित्र गरीब महिलाओं व दो लड़कियों से संबंधित है। यह एक खुली जगह है। यहाँ दो महिलाएँ और दो लड़कियाँ बैठी हुई हैं। एक तरफ लोहे की चद्दर खड़ी हुई है। एक छोटा-सा घड़ा, एक प्लेट व एक कटोरा रखा है। दो महिलाओं व एक लड़की के सामने सूप रखे हैं तथा एक अन्य लड़की के सामने लोहे का तसला रखा है। स्त्रियों के पीछे टूटे-फूटे दरवाजे और कुछ बीड़ी बनाने के पत्तों की ढेरियाँ रखी हुई हैं। वस्तुतः ये चारों लोग बीड़ियाँ बना रही हैं क्योंकि इनके सामने कुछ बीड़ियाँ बनी रखी हैं। बीड़ी में भरने वाला तंबाकू भी रखा हुआ है। ये सब बीड़ियाँ इसलिए बना रही हैं ताकि अपनी जीविका चला सकें। सभी लोग बड़ी तन्मयता से इस काम को कर रही हैं। ताकि अपनी जीविका चला सकें।

भारतवर्ष आदिकाल से ही बड़ा कर्मठ और बहुउद्योगीय देश रहा है। यहाँ के लोग बहुत परिश्रमी होते थे। नैतिक मूल्यों से इनका विकास होता था। मेहनत की रोटी कमाना और संतोषपूर्वक सादा जीवन व्यतीत करना ही इनके जीवन का उद्देश्य था।

धीरे-धीरे मशीनी युग आया। लोगों के काम-धंधे छिन गये और काम-धंधों के लिए तरस गये। इसीलिए गाँवों से शहर की ओर पलायन हुआ क्योंकि शहर में ही कोई काम मिले। बड़े-बड़े दुकानदार अपनी दुकान के छोटे-छोटे काम गरीब औरतों व लड़कियों को दे देते हैं जैसे बीड़ी बनाना, मोमबत्ती बनाना, साड़ियों में फॉल लगाना आदि काम जो स्त्रियाँ पढ़ी-लिखी नहीं होती हैं, वे अपना घरेलू काम समाप्त करके ऐसे काम ले आती हैं। ये काम करके वे अपना हाथ खर्च निकाल लेती हैं। ये छोटे कुटीर-धंधे हैं जिनमें लोग स्वयं को व्यस्त रखना चाहते हैं परन्तु छोटी बालिकाओं या बालकों को इस कार्य में लगाना कानूनी रूप से गलत है। यद्यपि गरीब परिवारों को अपनी जीविका के लिये बच्चों से काम कराना पड़ता है परन्तु इसके बावजूद भी वे शोषण का ही शिकार रहते हैं। उन्हें गंदे वातावरण में 10 से 12 घण्टे तक काम करना पड़ता है और वेतन के नाम पर इन्हें चंद रुपये ही दिये जाते हैं। इसके साथ-साथ बीड़ी में उपयोग होने वाला तम्बाकू अप्रत्यक्ष रूप से बच्चों के स्वास्थ्य को भी हानि पहुँचाता है। नशे से आंतरिक अंग शिथिल हो जाते हैं तथा श्वास में विकार पैदा करते हैं। फलस्वरूप ये बालक खतरनाक बीमारियों के शिकार हो जाते हैं। अतः आवश्यकता इस बात की है कि हम पूरी दृढ़ता से इस तथ्य को स्वीकारें कि हम नशीली वस्तुओं और बालश्रम का अपने जीवन से बहिष्कार करें और शुद्ध प्रकृति के वातावरण में जीवन बिताएँ।”

Answer 2.

(i) सेवा में,

श्रीमान् स्वास्थ्य अधिकारी,
जिला, आगरा।

विषय—सुविधायुक्त सरकारी अस्पताल खुलवाने की संस्तुति हेतु।

महोदय,

इस पत्र के माध्यम से मैं आपको अवगत कराना चाहती हूँ कि मेरे क्षेत्र में जो आगरा के समीप ही एक कस्बे में साधारण-सा अस्पताल बना हुआ है। उसमें न तो कोई योग्य चिकित्सक है और न ही कोई कम्पाउण्डर और न ही वहाँ से कोई भी दवाइयाँ प्राप्त की जा सकती

हैं। जितने दिन या समय चिकित्सक उपलब्ध होते हैं, वे भी सभी मरीजों का इलाज करने के लिये पर्याप्त नहीं हैं। समीप ही कोई अच्छे सरकारी अस्पताल के अभाव में मरीज अपनी जान से हाथ धो बैठते हैं क्योंकि उन्हें समय पर उचित उपचार नहीं मिलता। इस क्षेत्र के लोग अधिक सम्पन्न नहीं हैं वे प्राइवेट अस्पतालों का खर्चा नहीं उठा सकते। मरीजों के लिए अस्पताल में बैड भी नहीं हैं। शौचालयों की दशा इतनी खराब है कि संक्रमण लगने का डर रहता है। पानी की भी सुविधा नहीं है। फलस्वरूप मरीज यहाँ आकर और बीमार हो जाता है और उचित इलाज के अभाव में जान से हाथ धो बैठता है।

अतः आपसे विनम्र निवेदन है कि सरकार की सहायता से इस क्षेत्र में एक अच्छा सरकारी अस्पताल बनवाने की व्यवस्था की जाए। उसमें कम से कम दो योग्य चिकित्सक एवं कम से कम आठ अन्य कर्मचारी होने चाहिए। अस्पताल में स्वच्छता का विशेष ध्यान रखना चाहिए। साथ ही बिजली व पानी की सही व्यवस्था की जानी चाहिए। ऐसा होने पर यहाँ के लोग अपने जीवन की रक्षा भी कर सकेंगे साथ ही सरकार का दायित्व जनता के प्रति निभाया जा सकेगा।

मुझे आशा ही नहीं वरन् पूर्ण विश्वास है कि आप हमारे क्षेत्र में एक ऐसे चिकित्सालय के निर्माण की व्यवस्था करेंगे जो यहाँ के निवासियों के लिए वरदान साबित होगा और आप उदारता के पात्र होंगे। आपकी इस कृपा के हम आभारी रहेंगे।

सधन्यवाद !

भवदीय,

रजनी अरोरा

कुक्थला, बिचपुरी रोड

रुनकता, आगरा।

दिनांक 05.11.20XX

(ii) 17, कमला नगर

आगरा

दिनांक 07.11.20XX

प्रिय मित्र,

सप्रेम नमस्ते,

कुशलपूर्वक रहकर तुम्हारी कुशलता की सदैव कामना करता हूँ। आज मैं इस बात से बेहद प्रसन्न हूँ कि भारत ने ओलंपिक खेलों में उत्कृष्ट प्रदर्शन किया। रियो ओलंपिक 2016 में भारत की ओर से 124 खिलाड़ियों का दल भेजा गया। पूर्व स्वर्ण पदक विजेता अभिनव बिन्द्रा भारतीय दल के ध्वजवाहक बने और समापन पर साक्षी मलिक ने यह उत्तरदायित्व निभाया। दीपा कर्माकर ने ओलम्पिक में पहली बार भारतीय जिमनास्ट के रूप में पर्दापण किया और चौथे स्थान पर रहीं। ओलंपिक खेलों में महिलाओं ने देश का नाम रोशन किया। बैडमिन्टन में पी. वी. सिन्धु ने रजत पदक तथा साक्षी मलिक ने कुश्ती प्रतियोगिता में कांस्य पदक जीता।

मित्र! यह सच है कि हमारे खिलाड़ियों में जज्बा तो है, परन्तु उनके लिए अवसरों की कमी है। उनके पास उन पर्याप्त साधनों की कमी है जो विदेशों में खिलाड़ियों को प्राप्त होते हैं। मैं उन भारतीय

खिलाड़ियों को उनकी सफलता पर बधाई देता हूँ तथा समस्त भारतवासियों को भी बधाई देता हूँ।

आपके माता-पिता को मेरा चरण स्पर्श कहना। छोटे भाई को आशीर्वाद देना।

पत्रोत्तर की प्रतीक्षा में

तुम्हारा मित्र,

वरुण

Answer 3.

- (i) प्रांत में दुर्भिक्ष (अकाल) की स्थिति उत्पन्न हो गयी थी। लोग भूखे मरने लगे। उस समय वहाँ के राजा, महाराजा रणजीत सिंह थे। उन्होंने इस समस्या से छुटकारा पाने के लिए अपने शाही भण्डार गृह का द्वार हर जरूरतमंद के लिए खोल दिया।
- (ii) महाराजा ने यह घोषणा करवाई कि शाही भण्डार-गृह हर जरूरतमंद के लिए खुला है। जिसको जितना अनाज चाहिए वह उसमें से उठाकर ले जाये। इसे सुनकर पीड़ितों को राहत मिली। ऐसा उन्होंने इसलिए किया क्योंकि वह अपनी प्रजा से बहुत प्यार करते थे और उन्हें भूखा मरते नहीं देखना चाहते थे।
- (iii) वह सात्त्विक वृत्ति वाले सज्जन व्यक्ति थे। सनातन धर्म में उनका अगाध विश्वास था तथा वह बहुत स्वाभिमानी प्रवृत्ति के थे। किसी के सामने याचना करना उनके स्वभाव में नहीं था। उनका बेटा काबुल की लड़ाई में शहीद हो गया था और अब बहू तथा दो पोतों की जिम्मेदारी उन पर ही थी।
- (iv) बूढ़े सज्जन ने कम अनाज लिया क्योंकि वे शरीर से कमजोर थे, अधिक अनाज लेकर चल नहीं सकते थे। इसके साथ ही उनका मानना था कि संकट की इस स्थिति में कम अनाज लेना ही उचित है ताकि सबको अनाज मिल सके। अजनबी ने उनकी सहायता करने के लिये उनकी गठरी खोलकर उसमें अधिक अनाज भर दिया और स्वयं कंधे पर लादकर उनके घर तक छोड़ कर आये।
- (v) यह एक शिक्षाप्रद कहानी है जिसमें राजा रणजीत सिंह की प्रजावत्सलता को दिखाया गया है। वे बहुत दयालु थे और दीन-दुखियों की खूब सेवा करते थे। वे बूढ़ों को बहुत आदर देते थे। वे देशभक्तों व शहीदों का सम्मान करते थे और उनके परिवार के पालन-पोषण की जिम्मेदारी अपने ऊपर लेकर अपने कर्तव्य का पालन करते थे। इस कहानी में यह भी दिखाया गया है कि इंसान को लोभी व स्वार्थी नहीं होना चाहिए। उसे दूसरों की भलाई के बारे में भी सोचना चाहिए।

Answer 4.

- (i) आनंद - प्रसन्नता, हर्ष, उल्लास, आह्लाद
पुत्र - सुत, आत्मज
राक्षस - निशाचर, दानव
- (ii) आलस्य - स्फूर्ति सदाचार - दुराचार
सामिष - निरामिष कृत्रिम - प्राकृत
- (iii) प्रतीक्षा - प्रतिष्ठा गृन्थ - ग्रन्थ
परीस्थिती - परिस्थिति।
- (iv) अपना उल्लू सीधा करना (अपना मतलब निकालना) - राजनेता चुनाव के समय भोली-भाली जनता को झूठे वादों में फँसा वोट लेकर अपना उल्लू सीधा कर लेते हैं।

हाथ मलना (पछताना) - कुछ लोग समय रहते अपना कार्य पूरा नहीं करते, लेकिन जब समय निकल जाता है तो हाथ मलते रह जाते हैं।

- (v) (a) विद्यार्थी को जिज्ञासु होना चाहिए।
(b) इतनी आयु होने पर भी वह अविवाहित है।
(c) रात में सर्दी बढ़ रही है।
(d) अन्याय के सब विरोधी होते हैं।

SECTION 'B'

Answer 5.

- (i) कहानीकार सुदर्शनजी के द्वारा रचित कहानी “बात अठन्नी की” में कहानी के प्रधान पात्र इंजीनियर बाबू जगतसिंह अपने नौकर रसीला को फँसा रहे थे। उसका यह अपराध था कि इंजीनियर बाबू जगतसिंह ने नौकर रसीला से 5 रुपये की मिठाई माँगवाई थी। रसीला ने थोड़ी बेइमानी कर ली और वह 5 रुपये की जगह साढ़े चार रुपये की मिठाई लाया। अठन्नी उसने अपने मित्र रमजान को दे दी क्योंकि उसके ऊपर रमजान की अठन्नी उधार थी।
- (ii) रसीला, इंजीनियर बाबू जगतसिंह के यहाँ नौकरी करता है। उसे वहाँ काम करने का 10 रुपये वेतन मिलता है। गाँव में उसके बूढ़े पिता, पत्नी, एक लड़की और दो लड़के रहते हैं। वह परिवार के प्रति अपने उत्तरदायित्व को समझता है। वह अपनी नौकरी भी ईमानदारी से करता है। मित्र की सहायता पाने पर वह मित्र के प्रति भी कृतज्ञ है। अपनी चोरी पकड़े जाने पर वह गलती स्वीकार कर क्षमा भी माँग लेता है। रसीला एक परिश्रमी, ईमानदार, स्वामिभक्त, सीधा-सादा और ईश्वर से डरने वाला व्यक्ति है।
- (iii) हमें अपने नौकरों के साथ सद्व्यवहार करना चाहिए। हमें उन्हें अपने समान ही समझना चाहिए। वे हमारी दिन-रात सेवा करते हैं। हमें भी उनके सुख-दुःख में भागीदार होकर उनके प्रति सहानुभूति बरतनी चाहिए। मान लो यदि एक बार उसने विवशता में आकर गलती की तो उसके माफी माँगने पर उसे क्षमा कर देना चाहिए। जिस प्रकार इंजीनियर बाबू ने रसीला की मदद नहीं की वह गलत था। उन्हें रसीला की परिस्थिति समझ उसे क्षमा कर देना चाहिये।
- (iv) इस कहानी में लेखक श्री सुदर्शन जी ने धनवान मालिकों के क्रूर चरित्र का पर्दाफाश किया है। स्वयं रिश्वत लेकर अट्टालिकाओं में सुख-सुविधाओं के साथ रहते हैं लेकिन गरीब नौकरों के साथ अत्याचार करते हुए उनका दिल नहीं काँपता। इन्हें यह नहीं पता कि नौकरों की मेहनत पर ही इनकी सुखद जिंदगी चल रही है।

इस कहानी के माध्यम से लेखक ने अमीरज़ादों की रिश्वतखोरी का खुलासा किया है। जो कि खुद बड़े चोर हैं लेकिन छोटे मजदूर नौकर को जेल में डलवाकर शराफत का चोगा पहनकर घूमते हैं। हाँ, लेखक ने इस बात को स्पष्ट किया है कि एक रिश्वतखोर न्यायाधीश न्याय का चोगा पहनकर गरीब मजदूर को छः महीने के लिए हवालात में डाल देता है। इस प्रकार लेखक ने गरीबों के प्रति होने वाले अत्याचार समाज में व्याप्त रिश्वतखोरी व भ्रष्टाचार को उजागर किया है।

Answer 6.

- (i) मूर्ति नेताजी सुभाषचन्द्र बोस की थी और वह किसी उत्साही बोर्ड या प्रशासनिक अधिकारी ने शहर के मुख्य बाजार के मुख्य चौराहे

पर लगवा दी थी। वे चाहते थे कि आने वाली पीढ़ी नेताजी के बारे में जान सके।

- (ii) कस्बे के इकलौते हाईस्कूल ड्राइंग मास्टर मोतीलाल जी ने नेताजी सुभाषचन्द्र बोस की संगमरमर की नई मूर्ति बनाई थी। इस प्रकार मूर्ति आकर्षण का केंद्र थी। इसकी विशेषताएँ यह थीं कि टोपी की नोक से कोट के दूसरे बटन तक कोई दो फुट ऊँची मूर्ति थी जिसमें नेताजी सुन्दर लग रहे थे। कुछ-कुछ मासूम और कमसिन।

- (iii) उस मूर्ति में एक कमी थी और वह थी कि नेताजी की आँखों पर चश्मा नहीं था अर्थात् चश्मा संगमरमर का नहीं था।

उस कमी को एक कैप्टन चश्मेवाला पूरा किया करता था। वह मूर्ति को अपने पास उपलब्ध चश्मे के फ्रेमों में से कोई चश्मा पहना देता था। कभी गोल, कभी चौकोर, कभी काला, कभी लाल, वह चश्मा बदल-बदल कर नेताजी को पहनाता था। इसी प्रकार से कैप्टन नेताजी के चश्मों को रोज बदलता रहता था।

- (iv) नेताजी सुभाषचन्द्र बोस एक महान नेता और क्रान्तिकारी थे। नगरपालिका द्वारा कस्बे के बीच चौराहे पर नेताजी की मूर्ति लगवाना उनके प्रति श्रद्धा भावना को दर्शाता है तथा आने वाली पीढ़ियों में देशभक्ति की भावना उत्पन्न करता है।

यह उद्देश्य सफल भी रहा है, कैप्टन चश्मेवाले की मृत्यु के बाद बच्चों का सरकण्डे का चश्मा बनाकर मूर्ति को पहनाना इस बात की ओर संकेत करता है कि आने वाली पीढ़ी भी नेताजी के प्रति सम्मान की भावना रखती है।

Answer 7.

- (i) “बड़े भोले हैं आप सरकार.....” यह कथन बूढ़े सियार ने भेड़िये का हाथ चूमकर इसलिए कहा था क्योंकि वन में प्रजातन्त्र के लिए चुनाव होने वाले थे। यहाँ भेड़ों की संख्या अधिक थी तथा भेड़िये कम थे। उन्हें डर था कि यदि शासन भेड़ों का हो गया तो भेड़िये भूखे मर जायेंगे, लेकिन बूढ़ा सियार उसे समझाने की चेष्टा करते हुए कहता है रूप बदल देने से आदमी बदल जाता है और वे इसी प्रकार की नीति अपनाने वाले थे इसीलिए वह भेड़िए को निश्चित करने का प्रयास कर रहा है।
- (ii) बूढ़े सियार ने भेड़िए का रूप परिवर्तित करने के लिए उसके माथे पर तिलक लगाया, गले में कंठी पहनाई तथा मुँह में घास के तिनके ठूँस दिये।
- (iii) “भेड़ें और भेड़िये” हरिशंकर परसाई की बहुचर्चित व्यंग्यात्मक कहानी है जिसका संकेत सीधे राजनेताओं के प्रति है कि किस तरह राजनेता अपना उल्लू सीधा करने के लिए जनता को बेवकूफ बनाते हैं फिर उनका उत्पीड़न व उन पर अत्याचार करते हैं। इस तथ्य को प्रकाश में लाना ही लेखक का उद्देश्य रहा है। कहानीकार ने सामाजिक और राजनैतिक जीवन में व्याप्त भ्रष्टाचार व शोषण पर करारा व्यंग्य किया है। बूढ़े सियार ने जब भेड़िये का रूप परिवर्तन किया तो तीन बातें कहीं—(1) अपनी हिंसक आँखों को ऊपर न उठाना, (2) हमेशा जमीन की तरफ देखते रहना, कुछ बोलना मत नहीं तो पोल खुल जायेगी, (3) वहाँ बहुत सी भेड़ें आयेंगी—सुन्दर तथा मुलायम तो कहीं किसी को तोड़कर मत खा जाना।
- (iv) बूढ़ा सियार बहुत चतुर था। भेड़ों पर शासन करने के लिए उसने बड़ी कठोर कूटनीति अपनाई। वह तीन सियारों को लेकर आया।

उसमें से एक को पीला, दूसरे को नीला और तीसरे को हरे रंग से रंग दिया। पीले रंग का सियार विद्वता का प्रतीक है तथा बड़ा विचारक और कवि के रूप में जाना जायेगा। नीला सियार नेता व पत्रकार के रूप में होगा और हरे रंग में रंगा सियार धर्मगुरु होगा। ये तीनों सियार भेड़िये के सीधेपन का प्रचार करेंगे।

इस कहानी के माध्यम से लेखक हरिशंकर परसाई यह शिक्षा देना चाहते हैं कि प्रजातन्त्र के नाम पर स्वार्थी, ढोंगी और चालाक राजनेता सीधे-सादे लोगों का शोषण करते हैं। इसके लिए वह कवि, विद्वान और धर्मगुरु जैसे लोगों का सहारा लेते हैं। कहानी समझाती है कि हम लोगों को ऐसे लोगों के झाँसे में नहीं आना चाहिए।

Answer 8.

- (i) आकाश में मेघों के छाने का मानवीकरण करते हुए कवि सर्वेश्वर दयाल सक्सेना कहते हैं कि वर्षाकाल में पानी से भरे हुए मेघ आकाश में आने लगे तब ऐसा प्रतीत होने लगा कि ये मेघ शहर से सजे-सँवरे मेहमानों की भाँति गाँव में आये हैं।
- (ii) ‘बयार’ शब्द का अभिप्राय ‘हवा’ होता है। कवि इसके विषय में यह बताना चाहता है कि जब आकाश में घने-घने बादल छाते हैं तो हवा उमंगित हो उठती है। वह उल्लास में भरकर सब जगह नाचती इठलाती हुई घूमती फिरती है अर्थात् जब आकाश में बादल छाते हैं तो बड़ी ठण्डी-ठण्डी हवा बहती है और उसके लिये दरवाजे-खिड़कियाँ खुलने लगते हैं।
- (iii) जब बादल छाते हैं तो शीतल हवाएँ चलने लगती हैं। जब तेज हवाएँ चलती हैं तो दरवाजे, खिड़कियाँ, स्वतः ही खुलने लगते हैं। कवि यहाँ पर इस भाव को अभिव्यक्त करना चाहते हैं कि जिस प्रकार से हमारे घर कोई मेहमान आता है तो उसकी अगवानी में हम खिड़की, दरवाजे खोल देते हैं। उसी प्रकार आज मेघ हमारे अतिथि के रूप में गाँव में आये हैं, इसीलिये हमारे घर के द्वार व खिड़कियाँ उनके स्वागत में खुल गये हैं।
- (iv) कवि कहते हैं कि आकाश में जब पानी से भरे बादल छा गये तो प्रतीत हुआ जैसे शहर के मेहमान सज सँवरकर गाँव में आ गये हो और उनके आने पर सर्वत्र खुशी की लहर दौड़ गयी। हवा सब जगह खुशी से नाचती फिर रही है। अतिथि के स्वागत में दरवाजे खिड़कियाँ खुल गये हैं। पुराने पीपल के वृक्ष ने बढ़कर बादलों का अभिवादन किया। नदी ने घूँघट हटाकर बादलों के सुन्दर दृश्य का नजारा देखा। लता ने दरवाजे के पीछे से छिपकर कहा पूरे एक साल बाद तुम्हें याद आयी है। जल से भरे बादलों को देखकर तालाब बहुत प्रसन्न हैं ऐसा लग रहा है कि मानो परात में पानी भरकर वह अतिथि के चरण-प्रक्षालन करना चाहते हैं। काले घने बादलों से सर्वत्र अँधेरा छा गया है और बीच-बीच में बिजली चमकने लगी है। वह इस बात का संकेत दे रही है कि अब इसमें कोई सन्देह नहीं कि पानी नहीं बरसेगा। अर्थात् अब तो पानी अवश्य ही बरसेगा। इस कविता के माध्यम से कवि ने उस स्वागत-सत्कार और उल्लास का वर्णन किया है जो ग्रामीण संस्कृति में बादलों के आने पर होता है।

Answer 9.

- (i) प्रस्तुत दोहे भक्तिकालीन कवि कबीरदास द्वारा रचित हैं। प्रथम दोहे में कवि गुरु एवं गोविन्द अर्थात् परमेश्वर दोनों के विषय में विचार कर रहे हैं। वह अपने हृदय में सोच रहे हैं कि मेरे समक्ष मेरे सद्गुरु

और प्रभु दोनों ही खड़े हैं, परन्तु मुझे किसके प्रथम चरण स्पर्श करना चाहिए।

(ii) कबीरदास जी पूर्ण समर्पण भाव से अपने सद्गुरु पर न्यौछावर होना चाहते हैं क्योंकि, गुरु ही वह माध्यम है जिसके द्वारा परमात्मा को प्राप्त किया जा सकता है। अतः वह बताना चाहते हैं कि प्रभु से भी अधिक गुरु महत्वपूर्ण हैं क्योंकि गुरु के बिना भगवान के दर्शन असम्भव है।

(iii) प्रस्तुत दोहे में कबीरदास जी यह बताना चाहते हैं कि जब मनुष्य में अहं (मैं) अहंकार का भाव रहेगा तब तक उसके हृदय में भगवान का वास नहीं होगा। कवि कहते हैं कि यदि तुम्हें हृदय में हरि अर्थात् प्रभु को बसाना है तो 'मैं हूँ' इस भाव का त्याग कर दो।

कबीर का व्यक्तित्व न केवल हिन्दी सन्त कवियों में अपितु पूरे हिन्दी साहित्य में बेजोड़ है। कबीरदास जब साहित्य के क्षेत्र में आये वह समय कुरीतियों और अन्धविश्वासों से भरा था। वह हिन्दुओं के लिए अवतार एवं मुसलमानों के लिए पीर थे। उन्होंने खुले दिल से हिन्दू व मुसलमानों की बुराइयों का विरोध किया।

हिन्दुओं के लिए "माला फेरत जुग गया, गया न मन का फेर" लिखा तो मुसलमानों के लिए "कांकड़ पाथर जोरि कै, मसजिद लई बनाय, ता चढ़ि मुल्ला बांग दे क्या बहरा हुआ खुदाय।" इस प्रकार की बातों से दोनों ही धर्मों की कुरीतियों व अंधविश्वासों पर कवि ने चोट पहुँचाई है।

(iv) 'साँकरी' शब्द का अर्थ संकुचित अर्थात् पतली है। परमात्मा से प्रेम करने वाले भाव से कवि का तात्पर्य है कि प्रभु से प्रेम करने वाला रास्ता बहुत ही तंग है। उसमें दो चीजें एक साथ नहीं समा सकती। एक तो अहंकार और दूसरे प्रभु। इसलिए अपने प्रभु को निवासित करना हो तो अहंकार का त्याग करना पड़ेगा। तभी हरि से प्रेम हो सकता है।

Answer 10.

(i) 'मातृ मंदिर' से अभिप्राय जन्मभूमि से है। कवयित्री सुभद्रा कुमारी चौहान को यह आवाज सुनाई दे रही है कि किसी आक्रमणकारी ने मातृभूमि पर आक्रमण कर दिया है। वह अपनी रक्षा की पुकार कर रही है। यही पुकार कवयित्री को सुनाई दे रही है। वे यह महसूस कर रही हैं कि भारत माता अपने सपूतों को रक्षा के लिये पुकार रही हैं।

(ii) कवयित्री अपनी मातृभूमि की रक्षा हेतु प्राणों का बलिदान करने हेतु तैयार हैं क्योंकि मातृभूमि की रक्षा ही उसका मान-शान व स्वाभिमान है। वह उसकी रक्षा स्वयं का बलिदान करके भी करेगी।

(iii) कवयित्री मातृ मंदिर पहुँचने के लिए अत्यन्त उल्लसित हैं, किन्तु तभी उसके मन में यह प्रश्न उठता है कि क्या वह आसानी से वहाँ पहुँच सकेगी? यह रास्ता कठिन है। उसे प्रतीत हुआ कि इस मार्ग पर जाने के लिए वह बड़ी दीन-हीन अर्थात् पूर्णतया योग्य नहीं है। रास्ते कठिन हैं तथा बड़ी ऊँची-ऊँची सीढ़ियाँ बनी हुई हैं। कवयित्री के कमजोर पैर वहाँ से फिसल जायेंगे। वे सीढ़ियाँ ही कवयित्री के मार्ग में बाधक पड़ेदार हैं।

(iv) इस कविता के माध्यम से कवयित्री की देश के प्रति भक्ति भावना को दर्शाया गया है। कवयित्री ने इस कविता के द्वारा भारतवासियों को देश की पुकार पर मातृभूमि की रक्षा में प्राणों का बलिदान देने का सन्देश दिया।

Answer 11.

(i) मीनू को देखने के पश्चात् धनाढ्य परिवार की लड़की सरिता जिसके पिता पाँच लाख दहेज में देने वाले थे, को अमित देखने गया, धन के मद में खोई हुई सरिता अमित को पसन्द नहीं आई थी क्योंकि उसके रिश्ते व फोटो आदि में अमित ने रुचि नहीं ली। वह माँ से कहता है, "क्या बड़े घर की बेटी तुम्हारे साथ रह सकेगी? क्या वह हमारे घर के वातावरण में घुल-मिल सकेगी?" उसके इसी व्यवहार को देखकर माँ को लगा कि अमित को सरिता पसन्द नहीं है।

(ii) अमित के पिता मायाराम दहेज विरोधी थे। जब सरिता के पिता धनीमल जी ने विवाह में 5 लाख (दहेज) देने की बात कही तब उन्होंने स्पष्ट शब्दों में कहा इसकी जरूरत नहीं है। हम एक लड़की देख के आये हैं। सबको पसन्द है। उनका कहना था कि बड़े घर की लड़की लेकर वह अपने बेटे को बेचना नहीं चाहते। उसके पाँवों में वे बेड़ियाँ नहीं डालना चाहते हैं। बड़े घर की बेटी दहेज तो लायेगी लेकिन परिवार वालों के साथ मिलकर नहीं रह सकेगी।

(iii) अमित और सरिता का रिश्ता तय होने के लिए माँ अमित के पिता को उकसाने का कार्य करती है। माँ की इस धारणा से उनके लालची स्वभाव के बारे में पता चलता है। वह एक स्वार्थी और दहेज लोभी महिला हैं। उनके लिये धन से अधिक कुछ भी महत्वपूर्ण नहीं है।

(iv) शादी के विषय में हमारे समाज में यह परम्परा विद्यमान है कि लड़की वालों को हमेशा शादी विवाह के समय छोटा समझा जाता है। लड़के वाले अपने को बहुत उच्च समझते हैं। दहेज के लिये लड़की को प्रताड़ित किया जाता है।

मैं इस सामाजिक कुरीति का विरोध करता हूँ। आज के आधुनिक युग में लड़के व लड़की में कोई भेदभाव नहीं होना चाहिये।

Answer 12.

(i) मीनू उसे देखने अस्पताल गयी थी। वहाँ उसकी माताजी भी बैठी हुई थीं। मीनू को अमित व उसकी माँ ने बैठने के लिए कहा। अस्पताल जाते समय उसके दिल में अन्तर्द्वन्द्व था कि वह अस्पताल जाये या नहीं। अन्त में उसे लगा कि उसे अस्पताल जाना चाहिए।

(ii) कमरे में प्रवेश करते ही मीनू ने देखा कि अमित एक पलंग पर लेटा हुआ है और माँ से बात कर रहा है। तभी अमित की माँ ने मीनू से पूछा—“तुम्हारी वकालत तो पूरी हो गई है न?” उसने उत्तर दिया, “हाँ आण्टी! मैंने प्रथम श्रेणी में वकालत पास कर ली है और यहाँ मेरठ में ही प्रैक्टिस भी शुरू कर दी है।”

(iii) मीनू के वकालत पास करने पर अमित की माँ को विशेष प्रसन्नता हो रही थी कि वह अपने पैरों पर खड़ी हो गई है। आत्मनिर्भर हो गई है। उनका लड़का अमित एक्सीडेंट के कारण बिस्तर पर है। उनका पुत्र मीनू को ही प्यार करता है। अब मीनू से विवाह होने पर वह अमित का सहारा बन जाएगी। उसके बेटे के साथ कंधे से कंधा मिलाकर चलेगी। उनके बुढ़ापे का भी सहारा बन जायेगी। इसलिए अमित की माँ मीनू के वकील बन जाने पर बहुत प्रसन्न हैं। उसे अपनी गलती का अहसास हो गया था क्योंकि मीनू ने अमित को उस समय अपनाया जब वह अस्पताल में असहाय पड़ा हुआ था। जिस अमीर लड़की से उन्होंने अमित की शादी तय कराई थी वह रिश्ता तोड़कर चली गयी थी। उसके अमीर पिता ने अमित को छोड़कर अपनी पुत्री का दूसरे लड़के से विवाह करने का निश्चय कर लिया था। मीनू ने अमित को उसी असहाय अवस्था में स्वीकार

कर लिया था क्योंकि वह अमित से सच्चा प्यार करती थी। अमित की माँ की आँखें खुल गई थी। उसे आत्मनिर्भर मीनू पर गर्व एवं प्रसन्नता हो रही थी।

- (iv) मीनू के हृदय में बचपन से ही गरीब-बेसहारा, अपाहिज लोगों के लिए दया की भावना थी। उसके विवाह में सजावट पर उसके पिता दस हजार रुपये खर्च करना चाहते हैं। तभी वह अपने पिता को इस बात के लिए रोकती है और कहती है पिताजी कुछ घण्टों की रैनक के लिए आप दस हजार रुपये बर्बाद कर रहे हैं इनमें से पाँच हजार रुपये गरीब बेसहारा लोगों को दे दीजिए जिससे वे कुछ कार्य शुरू कर सकें। तभी उसे राजो का चचेरा भाई मनोहर दिखाई दिया वह अपंग था। उसने उसी क्षण उसकी सहायता करने का निश्चय कर लिया।

Answer 13.

- (i) मीनू इस समय अपनी सहेली नीलिमा के घर पर थी। नीलिमा के घर उसके पुत्र का नामकरण संस्कार था। इस उत्सव के उपलक्ष्य में नीलिमा के पति सुरेन्द्र के अनेक मित्र एकत्रित हुए थे। अमित सुरेन्द्र का घनिष्ठ मित्र था। अमित भी उस उत्सव में आया था। वहीं पर मीनू की अमित से मुलाकात हुई।
- (ii) मीनू मीरापुर के दयाराम की बड़ी पुत्री थी। एक बार शादी के लिए अमित, उसके पिता मायाराम, उनकी पत्नी एवं उसकी छोटी बहन मीनू को देखने आये। अमित को मीनू पसन्द थी। उसका आचार-व्यवहार अमित को पसन्द आया। वह उससे विवाह करना चाहता था, परन्तु बात पक्की करने से पहले मायाराम के पास धनीमल नाम का एक धनी व्यक्ति अपनी पुत्री सरिता का रिश्ता लेकर आया और उसने पाँच लाख दहेज में देने की बात कही। माँ को दहेज का लालच आ गया। उसने मीनू से मुँह फेर लिया, लेकिन अमित को सरिता नहीं मीनू पसंद थी। माता-पिता के द्वारा मीनू को कोई जबाब न देने के कारण बात अधूरी रह गयी। उन दोनों के बीच कोई रिश्ता नहीं था, परन्तु उपरोक्त घटना के कारण वे दोनों एक दूसरे को जानते थे।
- वह अमित से घृणा इसलिए करती थी क्योंकि दहेज के लालच में आकर उसने व उसके परिवार ने उसके पिता को धोखा दिया था।
- (iii) जब मीनू नीलिमा के पुत्र के नामकरण संस्कार में शामिल होने के लिए उसके घर गई तो वहाँ उसे नीलिमा से पता चला कि अमित, नीलिमा के पति सुरेन्द्र का मित्र था। उसका मेरठ के किसी घराने में रिश्ता तय होकर टूट गया था। विवाह से एक माह पूर्व लड़की वालों ने अपनी पुत्री को दहेज में एक फ्लैट देने की बात कही थी। यह बात अमित व उसके माता-पिता को पसंद नहीं आई। अमित अपने माता-पिता से अलग होकर अपनी गृहस्थी नहीं बसाना चाहता था। अतः उनका रिश्ता टूट गया।
- नीलिमा ने यह भी बताया कि अमित ने मीरापुर में एक लड़की देखी थी जो उन्हें पसंद भी आई थी परन्तु उस समय उनके माता-पिता की गलती से वह रिश्ता नहीं हो सका। अमित आज भी यह चाहते हैं कि यदि उस लड़की की शादी न हुई हो तो वे उसी से शादी करें। उस लड़की ने अपनी पहली मुलाकात में ही न जाने उन पर क्या जादू कर दिया था। नीलिमा को यह ज्ञात नहीं था कि वह लड़की मीनू ही थी। ये सारी बातें सुनकर मीनू के हृदय से अमित के प्रति घृणा के भाव दूर हो गए।

- (iv) मीनू की शादी के लिए अनेक रिश्ते आये, किन्तु उसके कद और सौवले रंग के कारण सभी लोग वापस चले गये, किन्तु मीनू ने हार नहीं मानी, वह एक प्रतिभाशाली और उच्च आत्मविश्वास वाली लड़की थी। कई बार उसमें हीन भावना आई, परन्तु उसने अपना मनोबल गिरने नहीं दिया। अन्त में उसने निश्चय कर लिया कि वह शादी नहीं करेगी। वह वकालत पढ़ेगी। वह सदैव कक्षा में प्रथम स्थान पाती थी। वकालत की परीक्षा भी उसने प्रथम श्रेणी में उत्तीर्ण की। वकालत पास करके मेरठ में ही उसने अपनी प्रैक्टिस शुरू कर दी।

उपन्यास में बताया गया है कि यदि इरादे नेक हों तथा आत्मबल मजबूत हो तो मनुष्य को सफलता मिलती है जैसा मीनू के जीवन में घटित हुआ।

Answer 14.

- (i) प्रस्तुत कथन लेखक विनोद रस्तोगी द्वारा रचित एकांकी 'बहू की विदा' में दहेज लोभी प्रधान पात्र जीवनलाल द्वारा बहू के भाई प्रमोद से तब कहा गया था जब वह अपनी बहन की शादी के बाद पहले सावन के त्योहार पर उसे घर ले जाने आया था। उसने प्रमोद को अपनी बहू के समक्ष बारात की खातिर और दहेज कम देने को लेकर बहुत ताने सुनाये और कहा कि इससे उसके मान-सम्मान को ठेस पहुँची है। उनके हृदय पर गहरे घाव हुए हैं। उसके लिए उन्हें मरहम चाहिए और उस मरहम की कीमत है पाँच हजार रुपए। जब वे पाँच हजार की रकम दे देंगे। तभी कमला विदा होगी।
- (ii) 'मरहम' का अभिप्राय ऐसी दवाई है जिसे घाव पर लगाने से घाव ठीक हो जाता है। यहाँ मरहम का प्रयोग जीवनलाल ने दहेज के पाँच हजार की कमी को पूरा करने के लिए किया है। साथ ही बारात की खातिरदारी में जो कमी रह गई थी, जीवनलाल बहू के भाई से उसे पूरा करके घावों पर मरहम लगाने की बात कह रहे हैं।
- (iii) जीवनलाल इस एकांकी के प्रमुख पात्र हैं। उनके चरित्र में निम्न विशेषतायें हैं:
- लालची :** वह एक धनी व्यापारी हैं और अपनी बहू कमला के मायके से इच्छानुसार दहेज न मिलने के कारण वह उसको मायके के लिए विदा नहीं करता। इससे यह कहा जा सकता है कि वह एक लालची किस्म के व्यक्ति हैं व दहेज लोभी हैं।
- अभिमानि :** जीवनलाल बहू के भाई प्रमोद से कहते हैं कि बारात की उचित खातिरदारी न करके उन लोगों ने उनको गहरी चोट पहुँचाई है और अगर उस चोट पर मरहम लगानी और बहन विदा करानी है तो पाँच हजार रूपयों का प्रबंध करना होगा।
- कठोर :** कम दहेज मिलने के कारण वह अपनी बहू को पहले सावन के मौके पर मायके नहीं जाने देते। इतनी ही नहीं, वे उसके भाई प्रमोद को खूब खरी-खोटी सुनाकर अपमानित भी करते हैं। वे बेटी और बहू में अंतर मानते हैं। उनकी तुलना में अपने घराने को प्रतिष्ठित बताते हैं।
- सदहृदय :** उन्हें अपनी गलती का अहसास तब होता है जब उनकी खुद की बेटी को कम दहेज देने के कारण विदा नहीं करा पाते। वह उस वक्त भौचक्के रह जाते हैं, उन्हें बुरा-भला कहते हैं परन्तु इसके साथ ही उनका हृदय परिवर्तित हो जाता है। वे एकदम पिघल जाते हैं। उसके बाद अपनी बहू को विदा कर भूल सुधार लेते हैं।
- (iv) इस एकांकी में लेखक ने समाज में व्याप्त दहेज प्रथा की अभिशाप समान बुराई को उठाया है। इस बुराई के लिए दहेज विरोधी

कानून बनाया गया है, किन्तु आज के युग में भी दहेज के समर्थक माता-पिता ही नहीं बल्कि स्वयं लड़के भी इसमें पीछे नहीं हैं। यद्यपि आज के पढ़े-लिखे नवयुवक प्रेम विवाहों के माध्यम से इस प्रथा को समाप्त करने में सहायक हैं तथापि जहाँ बात माता-पिता के द्वारा आयोजित विवाह की आती है, वहाँ तो दहेज चलता ही है। इसके अतिरिक्त समाज के धनकुबेर भी दहेज को बढ़ावा देते हैं। इस स्थिति में जिनके पास पर्याप्त धन नहीं है उनकी गुणवती बेटियाँ भी अविवाहित बैठ रही हैं। सरकार दहेज के लोभियों को कड़ी सजा देती है। आज अगर लड़कियाँ शिक्षित हैं तो अपने ऊपर होने वाले अत्याचारों का सामना कर सकती हैं।

Answer 15.

- (i) उपर्युक्त कथन के वक्ता महाराणा लाखा सिसौदिया वंश के राजपूत और मेवाड़ के शासक थे। वह राजपूतों में एकता की भावना सुदृढ़ बनाने के लिए असंगठित राजपूतों को एकजुट बनाने की भावना से बूँदी राज्य को अपने राज्य में मिलाना चाहते थे। उन्हें बाप्पा रावल और वीरवर हम्मीर की वीरता तथा शौर्य पर गर्व था। इस कथन का श्रोता अभयसिंह है। वह मेवाड़ का सेनापति एवं महाराणा लाखा का विश्वासपात्र मेवाड़ सैनिक है। राजपूतों में एकता के भाव की वृद्धि के लिए बूँदी लेकर राज्य में मिला लेने का सन्देश वही राव हेमू के पास गया। उनसे अत्यन्त मधुरता से बात करता है। इससे प्रतीत होता है वह सबको समान रूप से सम्मान देने वाला विनम्र, बुद्धिमान, मृदुभाषी सैनिक है।
- (ii) कथन के वक्ता महाराणा लाखा जो चित्तौड़ का सिसौदिया वंशी शासक था, एक बार युद्ध में बूँदी के राजपूतों द्वारा धोखे से हराये जाने के कारण उसका खून खौलता रहता है इसलिए उन्होंने प्रतिज्ञा कर ली कि जब तक वह बूँदी में ससैन्य प्रवेश कर उसे पराजित नहीं कर देंगे तब तक अन्न-जल ग्रहण नहीं करेंगे।
- (iii) हाड़ा वंश का राजा राव हेमू है। राव हेमू हाड़ा जाति के राजपूतों में से है। वह महाराणा लाखा और सिसौदिया वंश के अन्य राजपूतों के साथ प्रेम का सम्बन्ध रखना चाहते हैं। वे सबके प्रति सुख व दुःख में सहायक हैं, किन्तु किसी प्रकार की अधीनता वह किसी की स्वीकार नहीं करना चाहते। वह अनुशासन में विश्वास करते हैं। महाराणा लाखा ने राव हेमू के द्वारा अधीनता स्वीकार न करने के कारण नकली बूँदी का किला बनवाकर ससैन्य प्रवेश कर उसे पराजित करने का प्रयास किया, लेकिन उस समय भी हाड़ा वीरों व उनके एक वीर सेनानी वीरसिंह ने डटकर सामना किया और मातृभूमि पर अपना बलिदान दे दिया। हाड़ा राजपूत अत्यन्त वीर होते हैं। वे अपनी मातृभूमि की रक्षा में प्राणों की परवाह नहीं करते।
- (iv) 'प्राण जाये पर वचन न जाये' यह कथन मेवाड़ के शासक महाराणा लाखा के द्वारा कहा गया है। जब उन्होंने प्रतिज्ञा की थी कि जब तक बूँदी को पराजित नहीं कर दूँगा अन्न ग्रहण नहीं करूँगा। ऐसी प्रतिज्ञा पर चारणी ने महाराणा को प्रतिज्ञा न करने की बात कही तब महाराणा लाखा कहते हैं कि राजपूतों की तो यह पहचान है कि वे प्राण त्याग देंगे, परन्तु वचन को नहीं त्यागेंगे। इस कथन का अभिप्राय यही है कि प्राण भले ही चले जायें, परन्तु वचन को अवश्य पूरा किया जायेगा। महाराजा दशरथ ने वचन निभाने के लिए प्राण त्याग दिये थे। यह राजपूतों की शान व मान है।

एकांकी के सन्दर्भ में भी यह उक्ति सटीक है। महाराणा लाखा ने भी बूँदी से बदला लेने के लिए अपने वचन को बनाये रखा। दूसरी तरफ यदि हम देखें तो हाड़ा राजपूतों की सेना का सैनिक वीरसिंह इसका जीता जागता उदाहरण है।

Answer 16.

- (i) उपर्युक्त कथन श्री उपेन्द्रनाथ 'अश्क' के द्वारा रचित एकांकी 'सूखी डाली' के महत्वपूर्ण पात्र मूलराज छोटी बहू के अतिरिक्त परिवार के सभी सदस्यों से कह रहे हैं। यह बात इस सन्दर्भ में कही गई है कि दादा मूलराज का परिवार एक संयुक्त परिवार है। इन्दु व परेश की बहू बेला में अक्सर नॉक-ड्रॉक इस बात पर होती है क्योंकि वह एक सम्पन्न परिवार की सुशिक्षित लड़की है। इधर इन्दु को लगता है कि बेला अपने सामने सबको मूर्ख, गँवार व असभ्य समझती है। चूँकि दादाजी ने सम्पूर्ण परिवार को एक बड़े वटवृक्ष की फलती-फूलती डालियों के रूप में देखा है। वह उसे उसी रूप में फलता-फूलता देखना चाहते हैं। इसीलिए वह अपनी पोती ही नहीं अपितु घर के सभी सदस्यों को नई बहू बेला के साथ तालमेल बैठाते हुए उसको प्यार व सम्मान देने की बात कहते हैं।
- (ii) सब डालियाँ साथ-साथ फलने-फूलने से अभिप्राय यह है कि परिवार का हर सदस्य खुश व सुखी रहे। उनमें आपस में किसी भी प्रकार की हीन भावना या वैमनस्य नहीं होना चाहिए। "डालियाँ" शब्द का प्रयोग दादा मूलराज ने परिवार के सदस्यों के लिये किया है, दादाजी एक वट वृक्ष हैं। उनके पुत्र, वधुएँ, पोते सभी वट वृक्ष की डालियों की भाँति डालियाँ हैं। उन्होंने कहा है कि सब एकता के सूत्र में बँधकर एक-दूसरे को समझकर कार्य करें।
- (iii) 'सूखी डाली' एकांकी के मुख्य पात्र दादा मूलराज जो 72 वर्षीय परिवार के मुखिया हैं उनकी इच्छा है कि उनके परिवार के सभी सदस्य खुशी से भरपूर और प्रसन्नमुख रहें। इसका कारण यह है कि दादाजी स्वयं उनमें से किसी को कोई कष्ट नहीं होने देना चाहते हैं। उनके पास ऐसे समाधान हैं जिनसे वे उन सबको परस्पर घृणा, ईर्ष्या, अपमान या किसी को छोटा या गँवार समझने की बुराई को दूर करने में सक्षम हैं। उनके इसी गुण के कारण परिवार का हर सदस्य उनके सामने नतमस्तक है। यह एकांकी सुखद स्वस्थ एवं खुशहाल संयुक्त परिवार की नींव डालने पर बल देती है। दादाजी इसके मेरु हैं जिसने पूरे परिवार को एक स्वस्थ व्यवस्था प्रदान की है। वे सभी परिवारियों के साथ समान प्यार, सहानुभूति एवं सद्भावनापूर्ण व्यवहार करते हैं। वह दार्शनिक और मनोवैज्ञानिक हैं। हम लोगों को भी ऐसे ही संयुक्त परिवार की रचना करनी चाहिए। जिसमें परस्पर प्रेम, दूसरों की भावनाओं का आदर, सहनशक्ति एवं तालमेल का गुण हो।
- (iv) प्रस्तुत कथन से वक्ता दादा मूलराज की चरित्र की दार्शनिक, मनोवैज्ञानिक व सूझ-बूझ जैसी विशेषता का पता चलता है कि वे अपने संगठित परिवार को फलते-फूलते देखना चाहते हैं। जिस प्रकार वट वृक्ष की वृद्धि या विकास अथवा उसकी शक्ति उसकी डालियाँ हैं उसी प्रकार एक संगठित संयुक्त हँसता, खेलता तथा मुस्कराता परिवार ही अच्छे परिवार की पहचान है। संयुक्त परिवार को बनाये रखने में दादाजी ने कोमल स्वभाव द्वारा कठोरता को जीतने की बात सिद्ध कर दी है।

QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- पश्चिमी सभ्यता के प्रभाव से फैशन एवं प्रदर्शन की प्रवृत्ति बढ़ती जा रही है, जिसके कारण अनेक प्रकार की समस्याओं का जन्म हो रहा है तथा नैतिक मूल्यों का ह्रास हो रहा है। अपने विचारों द्वारा स्पष्ट कीजिये।
- “सादगी भी लोगों के दिलों में अमिट छाप छोड़ सकती है” कथन को ध्यान में रखते हुए अपने देश के किसी ऐसे व्यक्तित्व के विषय में लिखिये जिन्होंने ‘सादा जीवन उच्च विचार’ को आधार मानकर अपना जीवन बिताया, आपके ऊपर उस व्यक्ति का प्रभाव किस प्रकार का रहा यह भी स्पष्ट कीजिये।
- योग के माध्यम से हम शरीर तथा मन दोनों को स्वस्थ कर सकते हैं, जीवन में योग की अनिवार्यता तथा उससे मिलने वाले लाभों का वर्णन करते हुए अपने विचार लिखिए।
- एक कहानी लिखिए जिसका आधार निम्नलिखित उक्ति हो:—
“मजहब नहीं सिखाता आपस में बैर रखना”
- नीचे दिये गये चित्र को ध्यान से देखिए और चित्र को आधार बनाकर उसका परिचय देते हुए कहानी अथवा लेख लिखिए, जिसका सीधा सम्बन्ध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below : [7]

निम्नलिखित में से किसी एक विषय पर हिन्दी में लगभग 120 शब्दों में पत्र लिखिए :

- आपके टेलीविजन द्वारा विभिन्न चैनलों पर अन्धविश्वास तथा तन्त्र-मन्त्र से सम्बन्धित कार्यक्रम दिखाकर जनता को भ्रमित किया जा रहा है। भारत सरकार के सूचना एवं प्रसारण मन्त्री को इसकी जानकारी देते हुए ऐसे कार्यक्रमों पर रोक लगाने का अनुरोध कीजिए।
- आपकी चचेरी बहन जो गाँव में रहती है, उसकी दसवीं के बाद शिक्षा रोक दी गई है अतः उसकी आगे की शिक्षा जारी रखने का निवेदन करते हुए अपने चाचाजी को पत्र लिखिये जिसमें नारी शिक्षा की आवश्यकता और उसके लाभों की भी चर्चा कीजिए।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए। उत्तर यथासम्भव आपके अपने शब्दों में होने चाहिए :

बहुत समय पहले एक गाँव में हरिहर नाम का एक दयालु और सीधा-सच्चा किसान रहता था। वह खेती-बाड़ी का काम करता था। वह पूरा दिन अपने खेत में जी-तोड़ मेहनत करता था और शाम का समय ईश्वर की प्रार्थना में बिताता था। जीवन में उसकी मात्र एक इच्छा थी। वह उडुपि के मन्दिर में भगवान श्रीकृष्ण के दर्शन करना चाहता था। उडुपि दक्षिण कर्नाटक का प्रमुख तीर्थस्थान है। वह अपनी गरीबी के कारण तीर्थयात्रा की इच्छा पूरी नहीं कर पाता था। इसी तरह कुछ वर्ष बीत गए। समय के साथ-साथ हरिहर की आर्थिक स्थिति भी सुधरती गई। अब उसने तीर्थयात्रा की योजना बनाई। उसकी पत्नी ने उसके लिए पर्याप्त भोजन बाँध दिया।

हरिहर तीर्थयात्रियों के एक दल के साथ उडुपि की ओर चल दिया। मार्ग में उसे एक स्थान पर एक बूढ़ा आदमी मिला। उसकी दशा बहुत ही दयनीय थी। वह कई दिनों से भूखा-प्यासा था और पीड़ा के कारण कराह रहा था। जैसे ही हरिहर की नजर उस पर पड़ी, उसका हृदय करुणा से भर गया। उसने बूढ़े के पास जाकर पूछा, “बाबा, क्या तुम भी तीर्थयात्रा करने उडुपि जा रहे हो ?” बूढ़े आदमी ने उत्तर दिया, “मेरा एक बेटा बीमार है और दूसरे बेटे ने भी तीन दिनों से कुछ नहीं खाया। फिर मैं तीर्थयात्रा कैसे करूँ।” हरिहर समझता था कि दीन-दुखियों की सेवा ही ईश्वर की सबसे बड़ी सेवा है इसलिए उसने उडुपि जाने से पहले उस बूढ़े के घर पहले जाने का निश्चय किया। उसके साथियों ने उसे बहुत समझाया “बहुत मुश्किल से तुमने धन एकत्र किया है, अगर यह नष्ट हो गया तो फिर तुम कभी तीर्थयात्रा नहीं कर पाओगे।” हरिहर पर उनकी बातों का कोई प्रभाव नहीं पड़ा। वह बूढ़े के घर जा पहुँचा। उसने

सबसे पहले घर के सभी व्यक्तियों को भरपेट भोजन कराया। फिर वह बीमार बच्चे के लिए दवा ले आया। उसने बूढ़े आदमी को खेत में बोने के लिए बीज भी ला दिये। वह कुछ दिन वहाँ रुका। उसने बूढ़े आदमी के बेटे की सेवा की, जिससे वह कुछ दिनों में स्वस्थ हो गया लेकिन इन सारे कार्यों में उसके सारे पैसे खर्च हो गये।

अब उसने अपनी तीर्थयात्रा बीच में ही छोड़कर वापस घर लौटने का निश्चय किया। उसे उड़ुपि न जा पाने का बिल्कुल भी दुःख न था। क्योंकि वह जानता था कि उसने अपना सारा धन दीन-दुखियों की सेवा में खर्च किया था। घर पहुँचकर उसने अपनी पत्नी को सारी बातें बता दीं। पत्नी भी इस पर प्रसन्न हुई क्योंकि वह भी धार्मिक स्वभाव की महिला थी। उस रात हरिहर ने सपने में भगवान श्रीकृष्ण को देखा, जो उससे कह रहे थे, “हरिहर, तुम मेरे सच्चे भक्त हो। तुमने उस बूढ़े आदमी की सहायता की और अपनी इच्छा का बलिदान कर दिया। वह बूढ़ा आदमी कोई और नहीं मैं ही था। तुम्हारी परीक्षा के लिए ही मैं उस बूढ़े आदमी का वेश धारण कर वहाँ आया था। तुम मेरे सच्चे सेवक हो।” इस तरह हरिहर बगैर तीर्थयात्रा पर गए पुण्य का भागीदार बना।

- (i) हरिहर क्या काम करता था ? उसकी एकमात्र इच्छा क्या थी ? [2]
 (ii) हरिहर को तीर्थयात्रा के मार्ग में कौन मिला ? उसकी क्या स्थिति थी ? [2]
 (iii) हरिहर ने बूढ़े व्यक्ति की कैसे सहायता की ? [2]
 (iv) हरिहर ने घर लौटने का निश्चय क्यों किया ? वहाँ लौटने पर हरिहर ने क्या स्वप्न देखा ? [2]
 (v) इस गद्यांश से आपको क्या शिक्षा मिलती है ? [2]

Question 4.

Answer the following according to the instructions given:

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- (i) निम्न शब्दों के विशेषण बनाइए— [1]
लोभ, इतिहास।
- (ii) निम्न शब्दों में से किसी एक शब्द के दो पर्यायवाची शब्द लिखिए— [1]
बादल, स्वतन्त्र।
- (iii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विपरीतार्थक शब्द लिखिए— [1]
उपकार, कोमल, नूतन, स्वामी।
- (iv) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए— [1]
अपने पैर पर आप कुल्हाड़ी मारना, बाल-बाल बचना।
- (v) भाववाचक संज्ञा बनाइए— [1]
अधिक, भक्त।
- (vi) कोष्ठक में दिए गए निर्देशानुसार वाक्यों में परिवर्तन कीजिए— [1]
 (a) महाराणा प्रताप के साहस की तुलना नहीं की जा सकती है।
 (रेखांकित शब्दों के स्थान पर एक शब्द का प्रयोग कीजिये)
 (b) मेरे घर में जो नौकर काम करता है वह भाग गया है। [1]
 (सरल वाक्य बनाइये)
 (c) राजा का सेवक बहुत बुद्धिमान था। [1]
 (लिंग बदलकर वाक्य दोबारा बनाइये)

ANSWERS

SECTION 'A'

Answer 1.

- (i) पश्चिमी सभ्यता से प्रभावित युवा वर्ग की मानसिकता

पश्चिमी सभ्यता के प्रभाव से फैशन और प्रदर्शन की प्रवृत्ति बढ़ती जा रही है। इस कथन में लेशमात्र भी मिथ्या नहीं है। पाश्चात्य सभ्यता इतनी प्रभावशाली हो गई है कि लोगों की विवेकबुद्धि कुंठित हो गई है। क्या सही है, क्या गलत है, यह उन्होंने सोचना ही बन्द कर दिया है। कभी-कभी तो यह फैशन इतना हास्यास्पद प्रतीत होता है कि लोगों की बुद्धि पर दया आती है। फैशन में भी तो एक सन्तुलन होना चाहिए। फैशन के नाम पर भारतीय संस्कृति को तिलांजलि देकर पाश्चात्य संस्कृति को अपनाना अपनी ही जड़ों पर कुठाराघात किये जाने के समान है। नवीनता लाना या परिवर्तन लाना बुरी बात नहीं है, लेकिन उसमें शालीनता भी होनी चाहिए। फैशन के नाम पर नग्नता, अश्लीलता, मर्यादाहीनता आदि सराहनीय नहीं है। इससे समाज में विकृति उत्पन्न होती है। ऐसा प्रतीत होता है कि पश्चिमी देशों की नकल करके हम लोग फूहड़ और लज्जाहीन हो गये हैं। पाश्चात्य संस्कृति को आत्मसात करके हम अपने रीति-रिवाजों और श्रेष्ठ परम्पराओं को नष्ट करते जा रहे हैं। फलस्वरूप समाज

में अपराध, अशिष्टता, अश्लीलता, पारिवारिक विघटन उत्पन्न हो रहे हैं। आज लोगों को वेलेन्टाइन डे, अप्रैल फूल, रोज डे, मदर्स डे, फादर्स डे आदि तो याद रहते हैं। परन्तु माता-पिता, गुरु आदि के प्रति आदर भाव याद नहीं रहता है। पाश्चात्य सभ्यता का ही परिणाम है कि शादी के बाद बहुत शीघ्र सम्बन्ध विच्छेद हो रहे हैं। हमारे पूर्वजों ने एक लम्बे और गहन अध्ययन के बाद मनुष्य के लिए एक सभ्य समाज की संरचना हेतु हर क्षेत्र में कुछ आदर्श, कुछ मूल्य, कुछ सीमाएँ निर्धारित की थीं। जिनके अनुपालन से भारतीय संस्कृति विश्व में पूजनीय बनी। परन्तु आज उन्हीं आदर्शों की अवहेलना से हमारे नैतिक मूल्यों का निरन्तर पतन हो रहा है। यह पाश्चात्य संस्कृति का ही प्रभाव है कि पति-पत्नी के सम्बन्धों के बीच तीसरे की उपस्थिति न्यायोचित ठहराई जा रही है। शर्म की बात तो यह है कि भारतीय नारी जिसकी सुन्दरता तथा शृंगार उसकी लज्जा हुआ करती थी। आज वह पूर्णतया लज्जारहित हो गयी है। युवक-युवतियों पर माता-पिता का कोई अंकुश नहीं रहा। ‘गर्लफ्रेंड’, ‘बॉयफ्रेंड’ आधुनिक फैशन है। देर रात तक घर से बाहर रहना, क्लब में पार्टी, ड्रिंक व डांस करना यह सब पाश्चात्य संस्कृति का ही प्रभाव है। ‘प्रेम विवाह’ इसी संस्कृति की देन है। पाश्चात्य सभ्यता ने माँ को ‘मॉम’ व पिता को ‘डैड’ कर दिया

है। गुरु-शिष्य तथा भाई-बहन आदि के अतिरिक्त समाज के अहम व महत्वपूर्ण सम्बन्ध भी इतने दूषित हो गये हैं जिन्हें सुनकर लोग शर्मसार हो जाते हैं।

इतिहास साक्षी है कि जब कभी भी किसी देश, समाज, धर्म या समुदाय को हानि पहुँची है तो उसका कारण उसकी सभ्यता व संस्कृति तथा उसके आदर्शों पर कुठाराघात है। मार्क्स ने कहा था कि इस पाश्चात्य संस्कृति का भारत पर हावी होने का कारण अर्थ अथवा पूँजी है। यह पूँजी ही आधुनिक परिवेश में समाज के लिए स्वादिष्ट विष परोस रही है जो सम्पूर्ण मानव जाति को पतन की ओर ले जा रहा है।

(ii) 'सादा जीवन उच्च विचार'

'सादा जीवन उच्च विचार' बड़ी सारगर्भित उक्ति है। भले ही आज के आकर्षण-युक्त परिवेश में इस उक्ति का महत्व न रहा हो परन्तु युगों-युगों से यह कथन महत्वपूर्ण रहा है क्योंकि अनेक महापुरुषों ने इसके महत्व को द्विगुणित किया है। कौन नहीं जानता महान विभूति, लाल बहादुर शास्त्री को, जो गुदड़ी के लाल कहे जाते थे। वह सादगी में पले बढ़े तथा जीवन में संघर्षों से निरन्तर लड़ते रहे। ऐसी ही एक महान विभूति ईश्वरचन्द्र विद्यासागर जो सादगी की प्रतिमूर्ति थे। ऐसे ही लोगों में मेरी प्रेरणा का स्रोत रहे पूर्व राष्ट्रपति स्व. डॉ. ए. पी. जे. अब्दुल कलाम। जिन्होंने 'सादा जीवन उच्च विचार' को अपने जीवन में अपनाया।

हमारे देश को विकसित राष्ट्रों की पंक्ति में पहुँचाने का स्वप्न देखने वाले डॉ. ए. पी. जे. अब्दुल कलाम हमारे राष्ट्र के बारहवें राष्ट्रपति रहे। इन्होंने अपने जीवन में कर्मठता को अपनाया। उन्होंने किसी राजनीतिक दल से सम्बन्ध नहीं रखे। साथ ही ये राष्ट्रपति के पद को शोभायमान करने वाले देश के पहले वैज्ञानिक थे। 15 अक्टूबर 1931 को तमिलनाडु राज्य में रामेश्वरम के पास एक मछुआरे परिवार में जन्मे डॉ. कलाम एक मध्यवर्गीय परिवार से सम्बन्धित थे। इनका पूरा नाम अब्दुल पाकिर जैनुलबददीन अब्दुल कलाम था।

बचपन से ही इनमें आत्मनिर्भरता का जज्बा था। जिस उम्र में बच्चों को खेलकूद में रुचि होती है, उस आयु में अखबार बेचकर परिवार के सहयोगी बन गए थे। शिक्षा प्राप्ति के बाद प्रशिक्षु के रूप में बैंगलौर के हिन्दुस्तान एरोनॉटिक्स लिमिटेड जा पहुँचे। वहीं उन्हें पुस्तकीय ज्ञान का व्यावहारिक रूप सीखने का अवसर मिला था। अब्दुल कलाम ने सदैव निराशा के समय भी इस गुरुमन्त्र को आधार बनाया था कि जिस प्रकार रोज सूर्योदय अवश्य होता है, प्रतिवर्ष बसंत अवश्य आता है, उसी प्रकार हमें भी आशा नहीं खोनी चाहिए। ये सभी बातें मुझे भी प्रेरित करती हैं।

ऐसे प्रतिभावान व्यक्तित्व की सादगी व विचारों की श्रेष्ठता मुझे सदैव प्रोत्साहित करती रही है। अपने जीवन में डॉ. कलाम ने 20 साल रक्षा अनुसंधान एवं विकास प्रयोगशाला में बिताये। उनकी लगन व स्वप्न हमेशा उनकी प्रेरणा रही। ऐसे होनहार, ईमानदार, सादगी पसन्द कर्मठ, सचरित्र अनुशासन प्रिय देशभक्त डॉ. कलाम सदा ही मेरे जीवन की प्रेरणा रहेंगे।

अनेकानेक उपाधियों व उपलब्धियों से झोली भरी होने पर भी उनका व्यक्तित्व बहुत विनम्र था। वह कभी किसी धर्म व समुदाय के पक्षधर नहीं रहे। मुझे ही नहीं देश के प्रत्येक नागरिक को उनकी मानवतावादी विचारधारा प्रेरणा से भरती रहेगी। मैं भी उनके जीवन के समान अगर देश व मानवता की सेवा में अपना जीवन अर्पित कर सकूँ तो श्रेष्ठ बन सकूँगा। उन्होंने धन के प्रति उदासीनता, मानव मूल्यों के सम्वाहक बन सादगी से जीवन बिताते हुए अन्त समय तक कर्मनिष्ठता का आदर्श प्रस्तुत किया। मेरा जीवन ऐसे ही कर्मनिष्ठता व सादगी से भरा रहे, ये प्रेरणा जीवनपर्यन्त मेरे मन में समाहित रहेगी।

(iii) योग का महत्व

योग शब्द 'युज' धातु से बना है। संस्कृत व्याकरण में दो युज धातुओं का उल्लेख है। एक का अर्थ है जोड़ना, दूसरे का मन की स्थिरता। हमारे जीवन में योग का महत्वपूर्ण स्थान है। यह अक्षरशः सत्य है कि योग के माध्यम से हम अपने मन व शरीर को पूर्णरूपेण स्वस्थ बना सकते हैं। यदि वास्तव में हम अपने जीवन को सुखी व समृद्ध बनाना चाहते हैं तथा दुःखों से छुटकारा पाना चाहते हैं तो हमें नियमित रूप से योग करना चाहिए। यँ तो जीवन में सुख-दुःख आते रहते हैं, लेकिन मन को स्वस्थ रखने के लिए हमें शरीर को चुस्त-दुरुस्त रखना अति आवश्यक है।

कर्म साधना के लिए शरीर का स्वस्थ होना आवश्यक है, लेकिन मन की स्वस्थता ही कर्म करने की प्रेरणा देती है। अतः नियमित योग के माध्यम से ही तन व मन दोनों स्वस्थ रह सकते हैं। नियमित योगासनों को करने से शरीर में शक्ति तो आती ही है साथ ही रूप में लावण्य आता है। खुली हवा में योग करना फेफड़ों में ऑक्सीजन की वृद्धि करता है। शरीर का अंग-प्रत्यंग क्रियाशील होता है तथा शरीर में लचीलापन आता है। योग के द्वारा अनेक रोगों से भी रक्षा होती है तथा यह रक्त को शुद्ध करता है। हृदय को शुद्ध रक्त प्राप्त होता है। शरीर का आलस्य दूर होता है तथा क्रियाशीलता बढ़ती है। योग करने का सबसे श्रेष्ठ समय प्रातःकाल होता है। सूर्य नमस्कार करने से भयंकर से भयंकर रोगों से निवृत्ति मिल जाती है। योग करने से खूब भूख लगती है तथा पाचन शक्ति दुरुस्त रहती है। आत्मविश्वास, एकाग्रता एवं मस्तिष्क में बल वृद्धि होती है। शरीर से पसीना निकलता है जिससे शरीर की गन्दगी दूर होती है।

योग न करने से शरीर आलसी, रोगी व अनमना-सा रहता है। काम करने में मन नहीं लगता। भोजन में आसक्ति नहीं रहती। हमेशा प्रतीत होता है कि जैसे हम बीमार हैं। चिकित्सक के पास जाकर भी सन्तुष्टि नहीं होती। योग बिना पैसे का उपचार है। यह सब योग का ही चमत्कार है कि हमारे ऋषि-मुनियों ने योग के बल पर निराहार रहकर वर्षों तक एक पैर पर खड़े होकर तपस्याएँ की हैं। यही कारण है आज भी ऋषि-मुनियों ने व्यायाम और योगासन पर बहुत बल दिया है। बाबा रामदेव का योग आज के युग में योग का स्पष्ट उदाहरण है। उन्होंने योग के क्षेत्र में क्रांति ला दी है। उन्होंने योग के माध्यम से लोगों के लाइलाज रोगों को भी दूर किया है। उन्होंने प्राणायाम और योग के अनेक आसन बताये हैं। इन योगासनों

का ज्ञान बाबा रामदेव मौखिक और लिखित रूप में टेलीविजन के आस्था और संस्कार चैनलों पर नियमित देते हैं।

योग का सबसे बड़ा लाभ तो यह है कि योगी व्यक्ति को बहुत जल्दी बुढ़ापा नहीं आता। उसके शरीर का हर अंग नियमित व्यायाम व योग से क्रियाशील बना रहता है। आज के समय में बी. पी., डाइबिटीज, आर्थराइटिस, थायरॉइड जैसे अनेक रोग लगे हुए हैं, परन्तु इसमें सन्देह नहीं है कि जिन्होंने बचपन से योग व व्यायाम को अपनी नियमित दिनचर्या बनाया है, उसे कोई बीमारी छू नहीं सकती।

हमारे देश के प्रधानमंत्री श्री नरेन्द्र मोदी जी तो व्यायाम व योग के प्रबल समर्थक हैं। उन्होंने प्रत्येक व्यक्ति के लिए योग की आवश्यकता पर जोर दिया है। इसके महत्व को दर्शाने के लिए उन्होंने 21 जून को “योग दिवस” का भी आयोजन किया था। वह स्वयं योग करते हैं। कहने का अभिप्राय यह है कि योग करने वाले की कार्यक्षमता एवं मस्तिष्क क्षमता में अत्यधिक वृद्धि होती है। इसलिए मन, बुद्धि एवं शरीर को स्वस्थ रखने के लिए योग करना चाहिए।

(iv) “मजहब नहीं सिखाता आपस में बैर रखना।”

इस वाक्य का भाव है कि मजहब अर्थात् कोई धर्म परस्पर दुश्मनी करने की शिक्षा नहीं देता। हम अपने प्राचीन इतिहास को उठाकर देखें तो पता चलता है कि भिन्न-भिन्न धर्मों और सम्प्रदायों के धर्म-गुरुओं ने आपस में प्रेम, बन्धुत्व और सद्भाव का ही पाठ पढ़ाया है। मिल-जुलकर सभी समस्याओं का समाधान सम्भव है। किन्तु धर्म व सम्प्रदायों का आश्रय लेकर उनसे जुड़ी मानसिक संकीर्णताओं में फँसकर लड़ना-झगड़ना केवल वैमनस्य और अराजकता को ही जन्म देता है।

जब तक हम एक-दूसरे की भावनाओं को नहीं समझेंगे, परस्पर एक-दूसरे का आदर नहीं करेंगे, एक-दूसरे के हित का चिन्तन नहीं करेंगे तब तक आपसी सद्भाव का अभाव ही रहेगा। हमें अपने आपको, अपनी जवान को और अपनी आने वाली पीढ़ी को झूठी शानो-शौकत और श्रेष्ठता की चकाचौंध से बचाना होगा। हमारे मन्दिरों, मस्जिदों, गिरजाघरों और गुरुद्वारों के उत्थान में हमारी संस्कृति और सभ्यता के दर्शन होते हैं। इनमें हमारे पूर्वजों के परिश्रम व प्यार की मिसालें हैं। हमें उनका आदर करना चाहिए। हम सब एक ही परमात्मा की सन्तानें हैं। हिन्दू, मुस्लिम, सिक्ख, ईसाई से भी बढ़कर एक धर्म है और वह है मानव धर्म। हमें उसकी अवहेलना नहीं करनी चाहिए। यदि इस भाव को हम हृदय में धारण करें तो बहुत सहज है कि हम एक-दूसरे से भाईचारा बढ़ा सकेंगे, फिर बैर कहाँ होगा ?

हमारे धर्मों के पैगम्बर और गुरुओं ने लोगों को हमेशा समानता की शिक्षा दी है। जैन गुरु महावीर स्वामी के समीपस्थ वातावरण में तो हिंसक जंगली पशु भी हिंसा त्यागकर प्रेम से रहते थे। बौद्ध धर्म के प्रवर्तक महात्मा बुद्ध का कहना था कि “लोगों के दिलों में मोहबब्बत के फूल खिलाना हजारों तीर्थों से बेहतर है।” भगवान श्रीकृष्ण ने प्रेम के वशीभूत होकर अपने मित्र सुदामा के कंटक भरे चरणों को अपने अश्रुजल से ही धो डाला था। महान् बलिदानी प्रभु ईसा मसीह मानव जाति की भलाई के लिए सूली पर चढ़ गये थे। ममतामयी

माँ मदर टेरेसा ने बिना किसी धर्म व सम्प्रदाय का विचार किये हर पीड़ित, निराश्रित व दुःखी को हृदय से लगाया। हम यदि इतने बड़े कार्य न भी करें तो क्या मजहब को बीच में न लाकर प्यार से नहीं रह सकते ? यह तो बहुत छोटी-सी बात है जो हर प्राणी को प्रसन्नता दे सकती है। इसी सन्दर्भ में मुझे एक कहानी याद आ गई। राम और रहीम दो मित्र थे। दोनों में बड़ी घनिष्ठता थी। राम के घर में कोई उत्सव होता या कोई परेशानी होती तो रहीम जी-जान से राम के उस कार्य में शरीक होता। रहीम के घर में ईद की सिंवइयों का भरपूर आनन्द राम का पूरा परिवार लेता था। एक बार हिन्दू मुसलमानों में झगड़ा छिड़ गया। राम का घर रहीम की बस्ती में था। सारे मुसलमानों ने राम के घर पर धावा बोल दिया। रहीम को इस बात का अंदेश था। वह अपनी कटार लेकर राम के दरवाजे पर बैठ गया। उसने चेतावनी दी कि मेरा कत्ल करने के बाद ही कोई राम के घर में घुसेगा। लोग दो दिन तक सिर पीटते रहे। कोई परिणाम न निकला। वह केवल एक पंक्ति गुनगुनाता रहा “ईश्वर अल्लाह तेरो नाम सबको सन्मति दे भगवान।” अन्त में लोगों को इस बात का ज्ञान हुआ कि परमात्मा ही ईश्वर है, वही अल्लाह है, वही ईसा मसीह और वही वाहे गुरु है और हम सभी उसी एक की सन्तानें हैं। आपस में भाई-भाई हैं। फिर एक-दूसरे के दुश्मन कैसे हो सकते हैं ? यह बात सबको समझ आ गई। सभी ने रहीम से माफी माँगी और राम को गले लगाया। सब आपस में मित्र बन गये। बात सद्भाव की है, अगर मन में सभी प्राणियों के प्रति सद्भाव होगा तो बैर अपने आप समाप्त हो जायेगा।

(v)

चित्र प्रस्ताव

प्रस्तुत चित्र में दो 12-13 वर्ष की बालिकाएँ दर्शायी गई हैं। वह दोनों एक नल के पास बैठी हुई हैं। नल में बहुत तेज पानी आ रहा है जिसे देखकर वे दोनों अप्रत्याशित रूप से प्रसन्न हो रही हैं। ऐसा प्रतीत हो रहा है जैसे बहुत दिनों के बाद उन्हें नल में पानी की प्राप्ति हुई हो। उनकी हँसी ऐसी है जैसे बहुत समय के पश्चात् जब बादल बरसते हैं तो लोग खुशी से झूम उठते हैं।

जल ही जीवन है। जल के बिना जीवन का अस्तित्व नहीं है। कवि रहीम ने जल के महत्व को दर्शाते हुए लिखा है—

“रहिमन पानी राखिये बिन पानी सब सून।

पानी गये न ऊबरे मोती मानुष चून”।।

प्राणिमात्र के जीवन का आधार जल है। जल के बिना जीवन की सम्भावना कदाचित् असम्भव है। हमारे देश में इस समय जल संकट बहुत अधिक है। आपने अक्सर नलों पर प्रातःकाल से ही बर्तनों की भीड़ देखी होगी। पानी प्राप्त करने के लिए लोगों को झगड़ते भी देखा होगा। हमारी सरकार प्रकृति प्रदत्त जल सबको प्राप्त कराने में सर्वथा अशक्त है। इस चित्र के माध्यम से इसी भाव की अभिव्यक्ति हो रही है।

यह एक कस्बे का चित्र है जहाँ पर वहाँ के निवासियों ने बहुत दिनों से जल संस्थान अधिकारियों से कस्बे में जल की व्यवस्था के लिए अनेक प्रार्थना-पत्र दिये। बड़े समूह में एकत्रित होकर बार-बार जल संकट की शिकायत की। उन्होंने यह भी बताया कि कुएँ सूख गये हैं व नलकूप व्यर्थ हो गये हैं। यहाँ के निवासी प्यास

से व्याकुल हैं तथा पशुओं के लिए भी पानी की व्यवस्था नहीं है। बार-बार प्रार्थना किए जाने पर शायद अधिकारियों को दया आ गई, और उन्होंने उस क्षेत्र में पाइप लाइन बिछवा दी। अब पाइप लाइन तो बिछ गई परन्तु पाइप में पानी नहीं था। पुनः सभी क्षेत्रवासियों ने प्रदेश की सरकार से अपनी कठिनाई बताई। उसमें भी एक-दो महीने लग गये। कई बार तो जल संस्थान से पानी का टैंकर भेजकर लोगों की कठिनाई को दूर किया गया, लेकिन यह स्थायी समाधान नहीं था। पुनः कुछ लोग सीधे मुख्य मन्त्री के पास पहुँचे और अपनी दीन-दशा का वर्णन किया। मन्त्री जी ने लोगों के कष्ट को समझा और तुरन्त अपने अधीनस्थ अधिकारियों को कड़े आदेश देकर तुरन्त कार्यवाही करने के लिए कहा। परिणामस्वरूप वहाँ के निवासियों की मेहनत रंग लाई और आज नलों में पानी आने लगा जिसे देखकर यह दोनों बालिकाएँ अत्यन्त प्रसन्न हैं तथा सम्पूर्ण कस्बे के निवासियों की समस्या का भी समाधान हो गया।

यह कहानी बताती है कि सही दिशा में परिश्रम करने से सफलता अवश्य मिलती है।

Answer 2.

- (i) प्रतिष्ठा में,
माननीय सूचना एवं प्रसारण मन्त्री,
भारत सरकार,
दिल्ली।

विषय—टेलीविजन पर प्रसारित अन्धविश्वास एवं तन्त्र-मन्त्र से सम्बन्धित कार्यक्रमों पर प्रतिबन्ध लगाने हेतु।

माननीय महोदय,

आज के इस वैज्ञानिक युग में टेलीविजन के चैनलों पर अनेक प्रकार के अन्धविश्वासों एवं तन्त्र-मन्त्र मिश्रित कार्यक्रमों की भरमार है। आश्चर्य की बात तो यह है कि इनके प्रभाव से कमिश्नर, कलेक्टर, वकील जैसे प्रबुद्ध लोग भी अछूते नहीं रह सके हैं।

सुख व दुःख मानव जीवन के दो अंग हैं। कभी सुख तो कभी दुःख आते ही रहते हैं। इसी प्रकार से मानव शारीरिक मानसिक व शारीरिक रोग से ग्रसित होता रहता है। उसका उपाय ओझा, ज्योतिषी या फिर झाड़ू-फूंक करने वाले तान्त्रिक नहीं कर सकते हैं। उसका उपचार तो चिकित्सकों व वैद्यों के पास होता है, न कि अन्धविश्वासी धन ऐंठने वाले या भ्रमित करने वाले पाखण्डी पण्डितों या तान्त्रिकों के पास है।

महोदय, कभी गणेशजी की पत्थर की मूर्ति को दूध पिला रहे हैं। कभी भूत-प्रेत का बहाना कर एक निर्दोष पुरुष या स्त्री को कोड़ों से मार रहे हैं। दूध उफन गया तो अपशकुन हो गया। बिल्ली रास्ता काट गई तो अशुभ है। लम्बी बीमारी हो गई तो ग्रह शान्ति के लिए यज्ञ, दान आदि करना—ये सारे कृत्य भोले-भाले लोगों को पथभ्रष्ट करके धन अर्जित करने के साधन हैं।

टेलीविजन का कोई भी चैनल खोलकर देखिये हर चैनल पर एक नया ज्योतिषी दिखाई देगा। जिसका कार्य ऐसे कृत्य कर भोली-भाली जनता से धन ऐंठना है। सच तो यह है कि मनुष्य पुरुषार्थ करना भूल गया है। यही पर्याप्त नहीं है, कई पुरोहित तो लड़कियों के इलाज के बहाने व्यभिचार करते हैं।

महोदय मेरा आपसे विनम्र निवेदन है कि जनता की ईश्वर में आस्था बनी रहने देने के लिए और लोगों की सोच सकारात्मक बनाने के लिए अतिशीघ्र इन ढोंगी व पाखण्डियों के कार्यक्रमों पर प्रतिबन्ध लगाने का कष्ट करें ताकि व्यक्ति, समाज एवं देश का उद्धार हो सके। आशा है आप मेरे इस प्रस्ताव पर गम्भीरता से विचार करेंगे। सधन्यवाद।

प्रार्थी,

रवि शुक्ला

लखनऊ।

दिनांक 05.03.20XX

- (ii) 15/25 कमला नगर,
नई दिल्ली।

दिनांक 16.3.20XX

आदरणीय चाचाजी,

सादर चरण स्पर्श।

कुशलपूर्वक रहकर आपकी सपरिवार कुशलता की कामना करता हूँ। कल ही मुझे निशा का पत्र मिला और ज्ञात हुआ कि आपने उसकी कक्षा दस की परीक्षा उत्तीर्ण करने के पश्चात् उसे आगे अध्ययन करने की अनुमति नहीं दी है। यह जानकर बहुत कष्ट हुआ। चाचाजी आप एक अध्यापक हैं। लड़कियों की शिक्षा कितनी महत्वपूर्ण है, इस विषय में आपसे अधिक कौन जान सकता है ? शिक्षा लड़कियों का वह शस्त्र है जिसके सहारे वे अपने जीवन को मजबूत आधार दे सकती हैं। क्या आप जानते नहीं कि समाज में कितना नारी उत्पीड़न हो रहा है ? जीवन में कभी यदि कोई विषमता आ जाये तो शिक्षित नारी अपने जीवन की समस्याओं का समाधान करने योग्य तो होती है। आज के इस विकसित परिप्रेक्ष्य में भी आप मेरी बहन को केवल चूल्हे चाकी तक ही सिमटा देना चाहते हैं। आप नहीं चाहते कि वह भी अच्छी पढ़ाई करके अपने पैरों पर खड़ी हो जाये और खुशहाल जिन्दगी जी सके।

चाचाजी मेरी आपसे प्रार्थना है कि आप निशा की आगे की पढ़ाई आरम्भ कराइये तथा वह जो सपने हृदय में संजोये हैं, उन्हें पूरे करने में उसकी सहायता कीजिए।

आशा है आप मेरे इस सुझाव का आदर करते हुए निशा के बेहतर भविष्य के बारे में सोचेंगे। चाचाजी को सादर प्रणाम। घर में सबको यथा योग्य।

पत्रोत्तर की प्रतीक्षा में।

आपका भतीजा

सुशील

Answer 3.

- (i) सीधे-सादे स्वभाव का व्यक्ति हरिहर एक कृषक था। वह पूरे दिन अपने खेत में जी-तोड़ मेहनत करता था। सन्ध्या समय वह अपने प्रभु श्रीकृष्ण की आराधना में व्यतीत करता था।

दक्षिण कर्नाटक में उडुपि नाम का एक प्रमुख तीर्थस्थान है। उसमें उसकी घनिष्ठ आस्था थी। उसके दर्शन करने की उसकी प्रबल तथा एकमात्र अभिलाषा थी। परन्तु दरिद्रता के कारण इच्छा पूरी नहीं कर पाता था।

- (ii) हरिहर ने कड़ी मेहनत करके कुछ धन एकत्रित किया और वह तीर्थयात्रियों के एक समूह के साथ उडुपि नामक तीर्थस्थान की ओर चल दिया। अभी वह थोड़ी ही दूर चला, तभी मार्ग में उसे एक वृद्ध व्यक्ति मिला जिसकी दशा अत्यन्त दयनीय थी। वह कई दिनों से भूख-प्यास से पीड़ित और दर्द से कराह रहा था। उसकी दयनीय अवस्था से हरिहर दया द्रवित हो गया। उस बूढ़े से बातचीत करके हरिहर को ज्ञात हुआ कि उसका एक पुत्र बीमार है, दूसरा तीन दिन से भूखा है। हरिहर समझ रहा था कि शायद इस भीड़ में मिलने वाला वह बूढ़ा भी तीर्थयात्री है, परन्तु जब उसे उसका सच पता चला तो उसका हृदय करुणा से भर गया।
- (iii) हरिहर दीन-दुःखियों की सेवा को परमात्मा की सच्ची भक्ति समझता था। उसने उडुपि जाने का निश्चय त्याग दिया। उसके साथियों के बार-बार समझाने के उपरान्त भी उसने दीन-दुःखियों की सेवा को ही अपना प्रथम कर्तव्य समझा। हरिहर की पत्नी ने तीर्थयात्रा पर चलते समय बहुत-सा भोजन रखा था। सर्वप्रथम हरिहर ने बूढ़े के घर जाकर उस भोजन से उसके घर के भूखे व्यक्तियों को भरपेट भोजन करवाकर उन्हें तृप्त किया। तत्पश्चात् वह बीमार बच्चे के लिए दवा लेकर आया। यही नहीं उसने बूढ़े के खेत में अनाज बोने के लिए बीज लाकर दिये। वह कुछ दिन वहाँ ठहरा। उसने उसके बीमार बच्चे की सेवा-सुश्रूषा की जिससे वह स्वस्थ हो गया। उसने अपने पैसे परमार्थ के कार्यों में खर्च किये।
- (iv) उस बूढ़े व्यक्ति के परिवार की सेवा व सहायता करते हुए उसके कई दिन व्यतीत हो गये साथ ही उडुपि नामक तीर्थस्थान के दर्शन हेतु जो उसने धन एकत्रित किया था, वह भी वहाँ समाप्त हो गया। उसने अपने इस कर्म को हरि इच्छा समझा और प्रसन्न मन से अपने घर के लिए लौट पड़ा।

उसी रात हरिहर ने स्वप्न में भगवान श्रीकृष्ण के दर्शन किये जो कह रहे थे, “हरिहर तुम मेरे सच्चे भक्त हो, वह बूढ़ा कोई और नहीं, मैं ही था, मैं तो तुम्हारी परीक्षा ले रहा था। तुम परीक्षा में सफल हुए और तुम्हें तीर्थ का पुण्य भी प्राप्त हुआ।”

- (v) इस गद्यांश से हमें यह शिक्षा मिलती है कि जो सुख व सन्तुष्टि दीन-दुःखी की सेवा और पीड़ा दूर करने में है, वह तीर्थ आदि के दर्शन करने में नहीं है। तीर्थ में स्थित परमात्मा हर मनुष्य के हृदय में स्थित है। मनुष्य की सेवा करने से उसके अन्दर विद्यमान परमात्मा प्रसन्न होता है। इसलिए पीड़ितों की सेवा परमात्मा की सच्ची सेवा है।

Answer 4.

- (i) लोभ — लोभी इतिहास — ऐतिहासिक
 (ii) बादल — मेघ, वारिद स्वतन्त्र — स्वच्छन्द, स्वेच्छाचारी।
 (iii) उपकार — अपकार कोमल — कठोर
 नूतन — पुरातन स्वामी — सेवक।
 (iv) अपने पैर पर आप कुल्हाड़ी मारना—(अपना नुकसान स्वयं करना)—रमेश ने एक अपराधी को जेल से भगाने में सहायता करके अपने पैरों पर आप कुल्हाड़ी मारी है।
 बाल बाल बचना—(बहुत कम अंतर से बच जाना) ट्रक और कार की टक्कर में पास में ही खड़ा बालक बाल-बाल बच गया।
 (v) अधिक—अधिकता, भक्त—भक्ति।
 (vi) (a) महाराणा प्रताप का साहस अतुलनीय है।
 (b) मेरे घर में काम करने वाला नौकर भाग गया है।
 (c) रानी की सेविका बहुत बुद्धिमती थी।

Section B is not given due to change in the present syllabus.

GURUKUL

QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- 'विश्वासपात्र मित्र जीवन की एक औषध है।' कथन के आधार पर बताइए कि मानव के जीवन में मित्रों का क्या महत्व है ? वे किस प्रकार व्यक्ति के जीवन को प्रभावित करते हैं ? आप अपने मित्र का चुनाव करते समय उसमें किन गुणों का होना आवश्यक समझेंगे ? अपने विचार स्पष्टतः लिखिए।
- भारतीय संस्कृति में 'अतिथि को देवता के समान माना जाता है।' वर्तमान परिस्थितियों में यह मान्यता कहाँ तक सत्य के रूप में दिखाई दे रही है ? अतिथि कब बोझ बन जाता है और किस प्रकार ? विचारों द्वारा समझाइए।
- स्वच्छता हम सभी के लिए लाभदायक है, यदि आपको स्वच्छ भारत अभियान में सहयोग देने के लिए कोई तीन कार्य करने के लिए कहा जाए तो आप किन कार्यों को करना पसन्द करेंगे तथा क्यों ? अपने विचारों द्वारा स्पष्ट कीजिए।
- एक कहानी लिखिए जिसका आधार निम्नलिखित उक्ति हो :
'मन के हारे हार है, मन के जीते जीत।'
- नीचे दिये गये चित्र को ध्यान से देखिए और चित्र को आधार बनाकर वर्णन कीजिए अथवा कहानी लिखिए, जिसका सीधा व स्पष्ट सम्बन्ध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below : [7]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 120 शब्दों में पत्र लिखिए :

- आपकी कॉलोनी में कुछ असामाजिक तत्व (Antisocial elements) आकर बस गये हैं। उनकी गुंडागर्दी बढ़ने के कारण नागरिकों का जीवन कठिन हो गया है। अपने शहर के 'पुलिस कमिश्नर' को पत्र लिखकर उनकी शिकायत कीजिए तथा सुव्यवस्था के लिए शीघ्र कदम उठाए जाने की प्रार्थना कीजिए।
- आपका छोटा भाई किसी दूसरे शहर में पढ़ने गया है, जहाँ वह खेलने के लिए समय नहीं निकाल पा रहा है। खेलों का महत्व समझाते हुए उसे पत्र लिखिए।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए। उत्तर यथासम्भव आपके अपने शब्दों में होने चाहिए।

कौशल देश के वृद्ध राजा के चार पुत्र थे। उन्हें यह चिन्ता सताने लगी कि राज्य का उत्तराधिकारी किसे बनाया जाए ? सोच-विचार के बाद अपने चारों पुत्रों को बुलाकर राजा ने कहा—“तुम चारों में से जो सबसे बड़े धर्मात्मा को मेरे पास लेकर आएगा, वही राज्य का स्वामी बनेगा।” तत्पश्चात् चारों राजकुमार अपने-अपने घोड़ों पर सवार होकर चल पड़े।

कुछ दिनों बाद बड़ा पुत्र अपने साथ एक महाजन को लेकर आया और राजा से बोला—“ये महाजन लाखों रुपयों का दान कर चुके हैं, अनेक मन्दिर व धर्मशालाएँ बनवा चुके हैं तथा साधु-सन्तों और ब्राह्मणों को भोजन कराने के उपरान्त ही ये भोजन करते हैं। इनसे बड़ा धर्मात्मा कौन होगा ?”

“हाँ, वास्तव में ये धर्मात्मा हैं।” राजा ने कहा था तथा सत्कारपूर्वक विदा किया।

इसके बाद दूसरा पुत्र एक कृशकाय ब्राह्मण को लेकर आया और राजा से बोला—“ये ब्राह्मण देवता चारों धर्मों की यात्रा कर आए हैं, कोई तामसी वृत्ति इन्हें छू नहीं गई है। इनसे बढ़कर कोई धर्मात्मा नहीं है।”

राजा ब्राह्मण के समक्ष नतमस्तक हुए और दान-दक्षिणा देकर बोले—“इसमें कोई सन्देह नहीं कि ये एक श्रेष्ठ धर्मात्मा हैं।”

तभी तीसरा पुत्र साधु को लेकर पहुँचा और बोला—“ये साधु महाराज सप्ताह में केवल एक बार दूध पीकर रहते हैं। भयंकर सर्दी में जल में खड़े रहते हैं और गर्मी में पंचाग्नि तापते हैं। ये सबसे बड़े धर्मात्मा हैं।”

राजा ने साधु को प्रणाम किया और कहा—“निश्चय ही ये एक उत्तम साधु हैं।” साधु महाराज राजा को आशीर्वाद देकर विदा हुए।

अन्त में सबसे छोटा पुत्र एक निर्धन किसान के साथ आया। किसान दूर से ही भय के मारे हाथ जोड़ता चला आ रहा था। तीनों भाई छोटे भाई की मूर्खता पर ठहाका लगाकर हँस पड़े। छोटा पुत्र बोला—“एक कुत्ते के शरीर पर लगे घाव को यह आदमी धो रहा था। पता नहीं कि यह धर्मात्मा है या नहीं। अब आप ही इससे पूछ लीजिए।”

राजा ने पूछा—“तुम क्या धर्म-कर्म करते हो ? “किसान डरते-डरते बोला” मैं अनपढ़ हूँ, धर्म किसे कहते हैं, यह मैं नहीं जानता। कोई बीमार होता है तो सेवा कर देता हूँ। कोई माँगता है तो मुट्ठी भर अन्न अवश्य दे देता हूँ।”

राजा ने कहा—“यह किसान ही सबसे बड़ा धर्मात्मा है।” राजा की बात सुनकर तीनों बड़े लड़के एक दूसरे का मुँह ताकने लगे। राजा ने पुनः कहा—“तीर्थयात्रा करना, भगवत आराधना में लीन रहना, दान-पुण्य करना और जप-तप करना भी धर्म है, किन्तु बिना किसी स्वार्थ के किसी दीन-दुःखी और कष्ट में पड़े हुए प्राणी की सेवा करना सबसे बड़ा धर्म है। जो परोपकार करता है, वही सबसे बड़ा धर्मात्मा है।”

- (i) राजा को क्या चिन्ता थी ? उसने अपने पुत्रों को बुलाकर क्या कहा ? [2]
- (ii) बड़े पुत्र की दृष्टि में सबसे बड़ा धर्मात्मा कौन था और उसका क्या कारण था ? [2]
- (iii) साधु किसके साथ आया था ? उसका परिचय किस प्रकार दिया गया ? [2]
- (iv) किसान को राजा के सामने कौन लाया था और क्यों ? राजा ने किसान को ही सबसे बड़ा धर्मात्मा क्यों कहा ? [2]
- (v) प्रस्तुत गद्यांश से क्या शिक्षा मिलती है ? [2]

Question 4.

Answer the following questions according to the instructions given:

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- (i) निम्नलिखित शब्दों के विशेषण बनाइए : [1]
पूजा, धर्म।
- (ii) निम्नलिखित शब्दों में से किसी एक शब्द के दो-दो पर्यायवाची शब्द लिखिए : [1]
राजा, जलाशय।
- (iii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विपरीतार्थक शब्द लिखिए : [1]
निर्माण, क्रोध, देहाती, मूर्खता।
- (iv) भाववाचक संज्ञा बनाइए : साधु, तपस्वी। [1]
- (v) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए : [1]
कान का कच्चा, श्रीगणेश करना।
- (vi) कोष्ठक में दिये गये वाक्यों में निर्देशानुसार परिवर्तन कीजिए : [1]
(a) कश्मीर में अनेक दर्शनीय पर्यटक स्थल देखने योग्य हैं। (वाक्य को शुद्ध कीजिए) [1]
(b) मैं कलम से लिखूँगा। (वाक्य को भूतकाल में बदलिए) [1]
(c) आप परिवार के साथ हमारे घर आइएगा। (रेखांकित के स्थान पर एक शब्द का प्रयोग कीजिए) [1]

ANSWERS

SECTION 'A'

Answer 1.

(i) विश्वासपात्र मित्र जीवन की एक औषध है।

मनुष्य एक सामाजिक प्राणी है। अतः सामाजिक प्राणी होने के नाते मनुष्य सभी के साथ मिल-जुलकर समूह में रहना पसन्द करता है। ये व्यक्ति एक-दूसरे के रिश्तेदार या सम्बन्धी ही नहीं होते हैं। इन सम्बन्धों को मित्रता की संज्ञा दी गयी है। अच्छी मित्रता के अभाव में जीवन नीरस हो जाता है। इसलिए मानव जीवन में मित्रता की बहुत उपयोगिता है। जिस प्रकार धर्म और विवेक मनुष्य को पाप से बचाते हैं, उसी प्रकार एक विश्वासपात्र मित्र अपने मित्र को संकट के समय बचाता है। एक सच्चा मित्र अपने मित्र को कुमार्ग से हटाकर सन्मार्ग की तरफ ले जाता है। जब-जब मनुष्य को निराशा घेरती है और वह कर्तव्य विमुख होने लगता है तब-तब एक आदर्श मित्र उसे कल्याणकारी उपदेश देता है। यहाँ पर हम महाभारत के उस प्रसंग को याद कर सकते हैं जब रणक्षेत्र में अर्जुन मोहग्रस्त होकर कर्तव्य विमुख हो रहे थे, तब श्रीकृष्ण ने अर्जुन को कर्मयोग का उपदेश दिया था। हमें यह ज्ञात है कि श्रीकृष्ण और अर्जुन अभिन्न मित्र थे।

मित्रता जीवन निर्माण का एक बहुत ही महत्वपूर्ण अंग होता है अतः मित्र बनाते समय हमें अपने विवेक और बुद्धि से काम लेना चाहिए।

जो लोग ऊपरी व्यक्तित्व से प्रभावित होकर बिना सोच-विचार किये मित्र बनाते हैं, वे जीवन में लाभ के बजाय हानि उठाते हैं। इस प्रकार हमें भी सच्चा मित्र बनना चाहिए तथा मित्र की आँख में धूल नहीं झोंकना चाहिए।

सर्वप्रथम एक अच्छे मित्र में मित्रवत् व्यवहार का गुण होना चाहिए। एक अच्छे मित्र को धैर्यवान होना चाहिए। उसे एक अच्छा श्रोता तथा अच्छा वक्ता होना चाहिए ताकि वह अपने मित्र की समस्याओं को धैर्य से सुने और उनका समाधान कर सके। एक अच्छे मित्र में जीवन्तता होनी चाहिए और उसमें हास्यप्रियता का गुण होना चाहिए। इसके अतिरिक्त उसे सत्यवादी, ईमानदार और निःस्वार्थ होना चाहिए।

एक आदर्श मित्र विपत्ति और संकट में अपने मित्र की सहायता करने को सदैव तत्पर रहता है। जिस प्रकार श्रीकृष्ण ने सुदामा की संकट में सहायता की थी, वैसी आदर्श मित्रता का उदाहरण किसी अन्य देश में नहीं मिलता है।

आज व्यक्ति का मुख्य ध्येय धनोपार्जन करना और भौतिक विलास के साधन जुटाना मात्र रह गया है, तो ऐसे युग में जिस व्यक्ति का एक ही सच्चा मित्र है, वह व्यक्ति सही अर्थों में भाग्यशाली है। हमारी प्रतिष्ठा इस बात में नहीं है कि हमारे कितने मित्र हैं अथवा हमारे मित्रों की संख्या कितनी अधिक है, बल्कि इस बात में है कि

हमारे जो भी मित्र हैं, वे किस आचरण के हैं और आदर्श मित्र की कसौटी पर खरे उतरते हैं या नहीं। अतः इस प्रकार हम कह सकते हैं कि एक सच्चा और विश्वासपात्र मित्र जीवन की औषधि के समान होता है।

(ii) भारतीय संस्कृति में अतिथि का स्वरूप

भारत एक ऐसा देश है जिसमें एक नहीं अनेक विशेषताएँ हैं। फिर चाहे वे अपनत्व की भावना हो, या रिश्तों का मान-सम्मान हो, सब कुछ अपने आप में विशाल है। इन सबके अलावा एक और परम्परा जो हमारे देश में युगों-युगों से चली आ रही है और आज भी चल रही है। वह परम्परा है “अतिथि देवो भव” की।

भारतीय संस्कृति में अतिथि को देवता के समान माना जाता है। ‘अतिथि’ का शाब्दिक अर्थ है, जिसके आने की कोई निश्चित तिथि न हो। कालान्तर में ‘अतिथि’ शब्द हमारे घर आने वाले मेहमान के अर्थ में रूढ़ हो गया। हमारे घर जब भी कोई मेहमान आता है तो हम उसकी सेवा में कोई कमी नहीं रखते। गृहस्वामी उसको जल, आसन, भोजन आदि प्रदान कर उसका सम्मान करते हैं। उनके लिए घर में अच्छे-अच्छे व्यंजन तैयार करते हैं, उन्हें अपने साथ दर्शनीय स्थलों का भ्रमण कराते हैं।

समयानुसार, आज परिस्थितियाँ कुछ बदल चुकी हैं। आज लोगों के पास समय का अभाव है, इसलिए आने वाले व्यक्ति को भी आने से पहले दूरभाष द्वारा अपने आने की सूचना देनी चाहिए। जिससे मेजबान स्वयं को मानसिक रूप से तैयार कर ले। यदि वह नौकरी करता है, तो उस दिन के लिए अवकाश स्वीकृत करा लेगा। जहाँ पति-पत्नी दोनों ही नौकरी करते हैं वहाँ तो यह अत्यन्त आवश्यक है कि आने वाला उनकी परेशानी का कारण न बने। दूसरे, आज की परिस्थितियों को देखते हुए मेहमान को अधिक समय तक नहीं ठहरना चाहिए क्योंकि जिनके घर वह आया हुआ है, हो सकता है उसके कारण उन पर कार्य का भार अधिक बढ़ जाय, जिसके कारण वे परेशानी महसूस करें।

अतिथि यदि स्वयं विवेक और सहयोग से कार्य ले, तो वह कभी बोझ नहीं बन सकता, इसमें कोई सन्देह नहीं है। यदि गृहस्वामी आर्थिक रूप से कमजोर है तो मेहमान के आने पर उसके घर का बजट गड़बड़ा जाता है। ऐसे समय पर मेहमान स्वयं ही यदि फल, सब्जियाँ आदि उपहार के रूप में लाये तो गृहस्वामी अतिरिक्त भार से बच सकते हैं। यदि पति-पत्नी दोनों नौकरी करते हैं और मेहमान को रुकना आवश्यक है तो वह उन्हें अवकाश लेने के लिए विवश न करे अपितु गृहकार्य में उनका सहयोग करे तो इससे उन्हें खुशी होगी। साथ ही मेहमान को चाहिए कि वह उनसे अनावश्यक खर्च न कराये तथा सामान्य पारिवारिक सदस्य की तरह ही रहे।

अन्त में हम कह सकते हैं कि हमारे देश में ‘अतिथि देवो भवः’ की भावना अभी भी वैसी ही है जैसी प्राचीनकाल में थी, किन्तु अतिथि भी यदि मेजबान के घर की परिस्थितियों को समझकर अपनेपन की भावना रखे तो मेजबान यह कभी नहीं सोचेगा, “अतिथि तुम कब जाओगे?” बल्कि द्वार पर उन्हें विदा करते समय यही पूछेगा ‘अतिथि, फिर तुम कब आओगे? हम तुम्हारी प्रतीक्षा करेंगे।’

(iii) स्वच्छता की आवश्यकता

स्वच्छता से मनुष्य का तन मन स्वस्थ रहता है और वातावरण अच्छा और स्वास्थ्यप्रद। स्वच्छता को प्राचीनकाल से ही बहुत अधिक

महत्व प्रदान किया गया है। शौच अर्थात् स्वच्छता। स्वच्छता आन्तरिक और बाह्य दो प्रकार की होती है—आन्तरिक स्वच्छता अर्थात् अपने मन को ईर्ष्या, द्वेष, क्रोध, मोह आदि विकारों से मुक्त रखना और बाह्य स्वच्छता है अपने शरीर को स्वच्छ रखना तथा अपने आसपास के वातावरण को स्वच्छ और शुद्ध रखना। मन को स्वच्छ करके हम अच्छा आचरण अपनाते हैं और अपने शरीर तथा वातावरण को स्वच्छ करके हम अच्छा स्वास्थ्य प्राप्त कर सकते हैं।

अभी विगत 2 अक्टूबर गाँधी जयन्ती को वर्तमान प्रधानमन्त्री श्री नरेन्द्र मोदी ने ‘स्वच्छ भारत अभियान’ के रूप में मनाने की घोषणा की। स्वास्थ्यप्रद शुरुआत के सन्दर्भ में नदियों की सफाई का अभियान भी चलाया गया। हम सभी का कर्तव्य है कि हम सब ‘स्वच्छ भारत अभियान’ का हिस्सा बनें और संकल्प करें कि हम अपने देश को साफ-सुथरा रखेंगे। जब प्रत्येक व्यक्ति स्वच्छता के लिए एकजुट हो जायेगा तो स्वच्छ भारत का स्वप्न साकार हो जायेगा। स्वच्छता अभियान में सहयोग देने के लिए मैंने अपने सहपाठियों से बात की और हमने तीन कार्यों को करने का संकल्प लिया। जो इस प्रकार हैं—

1. **स्वच्छता की शुरुआत अपने घर से**—उठते ही अपना बिस्तर ठीक करना, कमरा साफ करना, अपने सभी सामान को तरीके से लगाना और अपने घर में किसी को भी गन्दगी फैलाने से रोकना, पॉलीथिन का प्रयोग न करना और न करने देना, कूड़ा कूड़ेदान में डालना आदि।

2. **कक्षा-कक्ष में**—हम कभी भी कक्षा-कक्ष को गन्दा नहीं करेंगे। कागज, पेन्सिल की छीलन, रैपर आदि सब कूड़ेदान में डालेंगे। कक्षा-कक्ष के एक कोने में कूड़ेदान रखा रहेगा। कोई भी छात्र कक्षा को गन्दा न करे, इस बात का हम सब मिलकर ध्यान रखेंगे।

3. **अपने आस-पड़ोस की स्वच्छता**—प्रायः देखा जाता है, लोग कूड़ा सड़कों पर डाल देते हैं जिसे कुत्ते या अन्य जानवर फैलाकर और गन्दगी फैलाते रहते हैं। इसके लिए हम ध्यान रखेंगे कि कोई भी पड़ोसी अपने घर का कूड़ा बाहर न डाले, कोई सड़क पर थूके नहीं और अपने घर के पास पेड़-पौधे आदि लगाकर पर्यावरण शुद्ध रखे।

इसके साथ ही लोगों को हम स्वच्छता के प्रति जागरूक करना चाहेंगे।

वास्तविकता यह है कि लोग स्वच्छता के महत्व को जानते हैं, किन्तु आलस्यवश इसको नजरअन्दाज करते हैं। जिसका परिणाम होता है; गन्दगी, बीमारियाँ, प्रदूषण आदि। अतः हमें स्वच्छता के महत्व को समझते हुए स्वच्छता के प्रति जागरूक रहना चाहिए तथा अपने घर, विद्यालय और देश को स्वच्छ रखने का संकल्प लेना चाहिए।

(iv) ‘मन के हारे हार है, मन के जीते जीत।’

मोहन अपनी कक्षा में सभी विषयों में ठीक था, किन्तु हिन्दी में वह हमेशा से ही पिछड़ा हुआ था। हिन्दी भाषा में उसके अंक सबसे कम रहते थे। इस कारण वह कक्षा में प्रथम नहीं आ पाता था। परीक्षा परिणाम आने के बाद सब उससे यही कहते थे कि यदि हिन्दी में भी तेरे अच्छे अंक आ जायें तो तू कक्षा में प्रथम आ जायेगा। सहपाठी भी उसका मजाक बनाने लगे थे। जिससे वह

बहुत निराश हो गया था। कुछ दिन बाद वह इस बार की वार्षिक परीक्षा में भी हिन्दी विषय में कम अंक आने के कारण प्रथम नहीं आ सका। अब मोहन ने मन ही मन यह स्वीकार कर लिया था कि वह हिन्दी नहीं सीख सकता।

मोहन की नई हिन्दी शिक्षिका, बीना शर्मा भी इस बात को समझ चुकी थीं। एक दिन उन्होंने मोहन को अपने पास बुलाया और पूछा—“मोहन, तुम्हें हिन्दी में क्या परेशानी है ? तुम मात्राओं का प्रयोग क्यों नहीं समझ पाते हो ?”

“मैं, मैंने हिन्दी सीखने की बहुत कोशिश की पर नहीं सीख पाया।” कहते-कहते मोहन की आँखों में आँसू आ गये। शिक्षिका उसकी ओर देखकर बोलीं—“तुम सीख सकते हो मोहन, दुनिया में ऐसा कोई काम नहीं है, जो नहीं किया जा सकता हो। हिन्दी सीखना भी असम्भव नहीं है। तुम अभी से अपने मन से यह बात निकाल दो कि तुम हिन्दी नहीं सीख सकते हो।”

मोहन केवल उन्हें देखे जा रहा था। शिक्षिका ने अपनी बात आगे बढ़ाते हुए कहा—“तुम्हें पता है कि तुम्हारे ठीक तरह से हिन्दी न सीख पाने का क्या कारण है? किसी भी भाषा को समझने के लिए हमें उसे ध्यानपूर्वक सुनना पड़ता है और शिक्षक जिस प्रकार उच्चारण करते हैं वैसे ही उच्चारण करने का अभ्यास करना चाहिए। दूसरी बात, जब हम पढ़ें तो पुस्तक में शब्दों और मात्राओं को ध्यानपूर्वक देखना चाहिए और उनका प्रयोग समझना चाहिए और जब लिखें तो ध्यानपूर्वक लिखो और फिर उसे पढ़ो ताकि यह जान सको कि वह मात्राएँ सही हैं या नहीं। तुम आज से ही इस कार्य को प्रारम्भ कर दो। मुझे पूरा विश्वास है कि तुम बहुत जल्दी ही मात्राओं का सही प्रयोग सीख जाओगे”।

शिक्षिका के मार्गदर्शन से, मन से हारे हुए मोहन में आत्मविश्वास जाग उठा। कुछ समय बाद जब परीक्षा हुई तो मोहन को हिन्दी में सबसे अधिक अंक मिले। अतः सच ही कहा गया है—‘मन के हारे हार है, और मन के जीते जीत।’

(v)

चित्र प्रस्ताव

प्रस्तुत चित्र में कुछ छात्र-छात्राएँ प्रधानमन्त्री श्री नरेन्द्र मोदी के ‘स्वच्छता अभियान’ को साकार रूप प्रदान कर रही हैं। इस बार 2 अक्टूबर, गाँधी जयन्ती को ‘स्वच्छता दिवस’ के रूप में मनाया गया। इस दिन स्कूल के छात्र-छात्राओं ने ‘स्वच्छ भारत’ का सपना साकार करने के लिए अपने हाथों में झाड़ू ली। वे सड़क पर आए और अपनी-अपनी झाड़ू से सड़क की सफाई करने लगे। सभी छात्र-छात्राओं ने सिर पर टोपी पहनी हुई थी। उनमें से कोई झाड़ू लगा रहा था तो कोई कचरे को उठाकर बोरी में भर रहा था। सभी में एक अपूर्व जोश था। स्वयं सफाई करने में उन्हें आत्मसन्तोष का अनुभव हो रहा था।

वस्तुतः अपने आस-पास सफाई रखना बहुत अच्छी बात है। हमें प्रारम्भ से ही सफाई की आदत डालनी चाहिए। इसकी शुरुआत तभी से हो सकती है जब बच्चा नर्सरी कक्षा में पढ़ता है। उसे अपनी पुस्तक, पेंसिल, स्कूल बैग आदि उचित स्थान पर रखने के लिए सीख दी जानी चाहिए। फर्श पर इधर-उधर

कूड़ा बिखेरने से रोकना चाहिए, इसलिए कमरे के एक कोने में कूड़ेदान रख दिया जाना चाहिए। इसी प्रकार से अपनी कक्षा में भी स्वच्छता का ध्यान रखना बहुत आवश्यक है। अपने शरीर की स्वच्छता के प्रति हमें लापरवाह नहीं होना चाहिए इसलिए प्रातः स्नान करना तथा स्वच्छ और धुले हुए कपड़े पहनना आवश्यक है। बाल उचित तरह से काढ़े हुए होने चाहिए तथा नाखून भी समय-समय पर काटते रहना चाहिए। अपने शरीर की और अपने आस-पास की स्वच्छता रखने से हम स्वस्थ रहते हैं तथा रोग के कीटाणुओं को पनपने का अवसर नहीं मिलता।

जब हम सभी मिलकर स्वच्छता का ध्यान देंगे तो स्वस्थ भारत का सपना साकार होने में देर नहीं लगेगी। इसलिए हम सबको स्वच्छता रखने का संकल्प लेना चाहिए।

Answer 2.

(i) सेवा में,

पुलिस आयुक्त महोदय,
आगरा महानगर,
आगरा।
महोदय,

मैं आपके संज्ञान हेतु निवेदन कर रहा हूँ कि कुछ दिनों पूर्व हमारी कॉलोनी के एक मकान में कुछ लड़के किराए पर आकर रहने लगे हैं। देखने में वे किसी कॉलेज में पढ़ने वाले छात्र मालूम पड़ते हैं, किन्तु यहाँ उनकी असामाजिक गतिविधियाँ काफी बढ़ गई हैं। उनकी वजह से कॉलोनी की लड़कियों का स्कूल और कॉलेज जाना मुश्किल हो गया है। प्रातः जैसे ही लड़कियाँ कॉलेज के लिए घर से निकलती हैं, वैसे ही वे सब अपने कमरे की बालकनी से फिकरेबाज़ी शुरू कर देते हैं। प्रतिदिन अति तेज ध्वनि में पाश्चात्य संगीत चलाते हैं जिससे छात्रों की पढ़ाई में व्यवधान आता है। इस विषय में उनसे बात की गई तो इस पर वे साफ मुकर गये और अपने आपको निर्दोष बताने लगे।

आपसे प्रार्थना है कि कृपया छात्र-छात्राओं की सुरक्षा के लिए और कॉलोनी में शान्ति व्यवस्था बनाये रखने के लिए तुरन्त कार्यवाही करने की कृपा करें। कृपया सम्बन्धित पुलिस अधिकारियों को निर्देशित करने का कष्ट करें कि हमारे द्वारा बताए हुए उक्त मकान में रहने वाले लड़कों की पूरी छानबीन की जाए और छात्र-छात्राओं की सुरक्षा का पूर्ण प्रबन्ध किया जाए।

सधन्यवाद।

प्रार्थी,

अनिल कुमार

संजय प्लेस, आगरा।

दिनांक 8.9.20XX

(ii)

18, सुहागनगर

अलीगढ़

दिनांक 20.8.20XX

प्रिय अनुज,

तुम्हारा पत्र मिला, पढ़कर हाल-चाल मालूम हुए। तुमने लिखा है कि वहाँ जाकर तुम्हारे ऊपर पढ़ाई-लिखाई का इतना भार हो गया है कि तुम खेलने के लिए समय नहीं निकाल पा रहे हो। पढ़ाई में व्यस्त रहना वैसे तो अच्छी बात है, किन्तु खेल से विमुख हो जाना भी ठीक नहीं है। अच्छा स्वास्थ्य बनाए रखने के लिए खेल बहुत आवश्यक है। खेल से मनुष्य का शारीरिक स्वास्थ्य तो अच्छा होता ही है, उसका मन भी प्रफुल्लित रहता है। जब मन खुश रहता है तो तन भी स्वस्थ होता है और जब तन स्वस्थ होता है तो हम बहुत से काम उत्साहित होकर कर पाते हैं जिससे उनका परिणाम अच्छा निकलता है।

लगातार पढ़ाई करते रहने से तथा एक जैसी दिनचर्या से मानसिक थकान होने लगती है। इससे हमारी कार्य करने की क्षमता प्रभावित होती है और इससे हमारी स्मरण शक्ति पर भी प्रभाव पड़ता है।

इसलिए इस बात का ध्यान रखो कि जितना आवश्यक पढ़ाई करना है, उतना ही आवश्यक खेल-खेलना भी है। खेल हमारी दिनचर्या का एक अंग होना चाहिए। अतः तुम अपनी दिनचर्या इस प्रकार बनाओ कि उसमें एक या दो घण्टे खेल के लिए भी निकाल सको। इसके लिए अपने समय के विभाजन का एक चार्ट बनाओ और उसी प्रकार से सारे कार्य करो। जब हम अपने सारे कार्य सही समय पर और व्यवस्थित तरीके से करते हैं तो हमें समय का अभाव नहीं होता। खेलने से तुम्हारे मन में उत्साह बढ़ेगा और तुम अपनी पढ़ाई पर पहले से अधिक ध्यान दे सकोगे। मुझे आशा है कि अब तुम खेल और पढ़ाई दोनों में संतुलन बनाओगे। शेष सब कुशल है।

तुम्हारा बड़ा भाई
राजन

Answer 3.

- (i) कौशल देश के राजा वृद्ध हो चुके थे इसलिए उन्हें यह चिन्ता थी कि वे अपने राज्य का उत्तराधिकारी अपने चारों पुत्रों में से किसको बनाएँ। कुछ सोच-विचार करने के बाद उन्होंने अपने चारों पुत्रों को बुलाया और कहा कि तुम चारों में से जो भी सबसे बड़े धर्मात्मा को मेरे पास लेकर आएगा, राज्य का उत्तराधिकारी उसी को बनाया जायेगा।
- (ii) बड़े पुत्र की दृष्टि में एक महाजन सबसे बड़े धर्मात्मा थे। उसका

कारण था कि वह लाखों रुपए का दान कर चुके थे, बहुत से मन्दिर और धर्मशालाएँ बनवा चुके थे और भोजन भी वह तभी करते थे जब पहले बहुत से साधु-सन्तों और ब्राह्मणों को भोजन करवा देते थे।

- (iii) साधु तीसरे पुत्र के साथ आया था। उसने उसका परिचय इस प्रकार दिया कि ये साधु महाराज सप्ताह में केवल एक बार दूध पीकर ही रहते हैं और भयानक सर्दी में भी ये जल में खड़े रहते हैं तथा गर्मियों में पंचाग्नि जलाकर तप करते हैं अतः यही सबसे बड़े धर्मात्मा हैं।
- (iv) किसान को राजा के सामने उसका सबसे छोटा पुत्र लेकर आया था क्योंकि उसने उसे एक कुत्ते के घावों को साफ करते हुए देखा था। राजा ने उस किसान को ही सबसे बड़ा धर्मात्मा घोषित किया क्योंकि उनके अनुसार बिना किसी स्वार्थ के दीन-दुःखियों की और कष्ट में पड़े हुए प्राणियों की सेवा करना सबसे बड़ा धर्म है अतः यह किसान ही सबसे बड़ा धर्मात्मा है।
- (v) प्रस्तुत गद्यांश से हमें यह शिक्षा मिलती है कि जब हम पुण्य लाभ के लिए जप-तप, दान-धर्म आदि करते हैं तो उसमें हमारा स्वार्थ होता है, किन्तु बिना किसी स्वार्थ के निर्बल, दीन दुःखियों की सहायता करना ही सबसे बड़ा धर्म है अतः हमें निःस्वार्थ भाव से उनकी सहायता करनी चाहिए।

Answer 4.

- (i) पूजा — पूज्य, पूजनीय धर्म — धार्मिक।
- (ii) राजा — नृप, नरेश। जलाशय — तालाब, सरोवर।
- (iii) निर्माण — विनाश देहाती — शहरी
- क्रोध — शान्ति मूर्खता — बुद्धिमानी
- (iv) साधु — साधुता, साधुत्व तपस्वी — तपस्या, तप।
- (v) कान का कच्चा (सुनी-सुनाई बात पर विश्वास करना)—स्वयं परिस्थिति को देख-समझकर निर्णय लिया करो। कान का कच्चा होना अच्छी बात नहीं है।
- श्रीगणेश करना (शुरुआत करना)—दो महीने बाद मेरी परीक्षाएँ हैं। अभी तक मैंने पढ़ाई का श्रीगणेश नहीं किया है।
- (vi) (a) कश्मीर में अनेक दर्शनीय पर्यटन स्थल हैं।
या
कश्मीर में अनेक पर्यटन स्थल देखने योग्य हैं।
- (b) मैंने कलम से लिखा था।
- (c) आप सपरिवार हमारे घर आइएगा।

Section B is not given due to change in the present syllabus.

QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- भारतीय तथा पाश्चात्य संस्कृति का वर्णन करते हुए पाश्चात्य संस्कृति की कुछ अपनाने योग्य बातों पर प्रकाश डालिए।
- आज खेलों में फैला भ्रष्टाचार एक नया ही रूप ले रहा है, विषय को स्पष्ट करते हुए, अपने प्रिय खेल का वर्णन कीजिए तथा जीवन में खेलों की आवश्यकता पर प्रकाश डालिए।
- अपने जीवन में घटी उस घटना का वर्णन कीजिए जिसे याद करके, आप आज भी हँसे बिना नहीं रहते तथा इससे आपको क्या लाभ मिलता है?
- एक मौलिक कहानी लिखिए जिसका आधार हो—
“जाको राखे साइयाँ मार सके न कोय।”
- आगे दिये गये चित्र को ध्यान से देखिए और चित्र को आधार बनाकर वर्णन कीजिए अथवा कहानी लिखिए जिसका सीधा व स्पष्ट सम्बन्ध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below :— [7]

निम्नलिखित में से किसी एक विषय पर हिन्दी में लगभग 120 शब्दों में पत्र लिखिये :

- आप किसी स्थान विशेष की यात्रा करना चाहते हैं। उस स्थान की जानकारी प्राप्त करने के लिए, उस क्षेत्र के पर्यटन विभाग के अधिकारी को पत्र लिखकर पूछताछ कीजिए।
- आपका भाई अपना अधिकांश समय मोबाइल फोन के उपयोग में बिताता है। मोबाइल फोन के अधिक उपयोग करने से होने वाली हानियों का उल्लेख करते हुए, उसे पत्र लिखिए।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible :-

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए। उत्तर यथासम्भव आपके अपने शब्दों में होने चाहिए :

महान रसायनशास्त्री आचार्य नागार्जुन को अपनी प्रयोगशाला के लिए दो सहायकों की आवश्यकता थी। अनेक युवक उनके पास आये और निवेदन किया कि वे उन्हें अपने सहायक के रूप में नियुक्त कर लें, लेकिन परीक्षा लेने पर सभी प्रत्याशी अयोग्य साबित हुए। अन्त में आचार्य निराश हो गए। उनकी निराशा का कारण यह था कि युवकों में रसायनशास्त्र के ज्ञाता तो बहुत थे और अपने विषय से परिचित भी, लेकिन एक रसायनशास्त्री के लिए जो एक पवित्र ध्येय होता है, उसका सभी में अभाव था। प्रत्याशियों में से किसी को अपने वेतन की चिंता थी, किसी को अपने परिवार की, तो किसी को अपना भविष्य उज्ज्वल बनाना था। पर आचार्य नागार्जुन को ऐसे सहायक की आवश्यकता नहीं थी। उनके मन और विचार में कुछ और ही था। निराश होकर उन्होंने सहायक की आवश्यकता होते हुए भी स्वयं ही सारा कार्य करने का निश्चय कर लिया।

कुछ दिन बाद ही दो युवक आचार्य के पास आये। उन्होंने उनसे निवेदन किया कि वे उन्हें अपना सहायक नियुक्त कर लें। आचार्य ने पहले तो उन्हें लौटा देना चाहा, लेकिन युवकों के अधिक आग्रह पर उन्होंने उनकी परीक्षा लेने का निश्चय किया। आचार्य ने दोनों युवकों को एक पदार्थ देकर दो दिन के भीतर ही उसका रसायन तैयार कर लेने को कहा। दोनों युवक पदार्थ लेकर अपने घर लौट गए।

दो दिन बाद एक युवक रसायन तैयार करके सुबह-सुबह ही उनके पास पहुँचा और रसायन का पात्र उन्हें देते हुए बोला “लीजिए आचार्य जी, रसायन तैयार है।” रसायन के पात्र की ओर बिना देखे ही आचार्य ने प्रश्न किया, “तो रसायन तैयार कर लिया तुमने ?” रसायन का पात्र एक ओर रखते हुए युवक ने कहा, “जी हाँ।” आचार्य ने दूसरा प्रश्न किया, “रसायन तैयार करते समय किसी भी प्रकार की कोई बाधा तो उपस्थित नहीं हुई ?” युवक ने सकुचाते

हुए उत्तर दिया, “बाधाएँ तो बहुत आई थीं, लेकिन मैंने किसी भी बाधा की चिंता किये बिना अपना कार्य चालू ही रखा तथा रसायन तैयार कर लिया। यदि मैं बाधाओं में उलझ गया होता तो, रसायन तैयार हो ही नहीं सकता था। एक ओर तो पिता के पेट में भयंकर शूल था, दूसरी ओर मेरी माता ज्वर से पीड़ित थी। ऊपर से मेरा छोटा भाई टॉग तुड़वाकर पीड़ा से कराह रहा था, परन्तु ये बातें मुझे रसायन बनाने से विचलित नहीं कर सकीं।”

तभी दूसरा युवक खाली हाथ आकर वहाँ खड़ा हो गया। आचार्य जी ने उससे पूछा, “रसायन कहाँ है ?” युवक ने झिझकते हुए उत्तर दिया, “आचार्यजी, मैं क्षमा चाहता हूँ। मैं रसायन तैयार नहीं कर सका क्योंकि जाते समय मार्ग में एक वृद्ध व्यक्ति मिल गया था। वह एक सड़क दुर्घटना में घायल हो गया था। मेरा सारा समय उसकी सेवा में ही व्यतीत हो गया।”

आचार्य ने पहले युवक से कहा, “तुम जा सकते हो। मुझे तुम्हारी आवश्यकता नहीं। रसायनशास्त्री यदि पीड़ा से कराहते हुए व्यक्ति की उपेक्षा करे, तो वह अपने शास्त्र में अपूर्ण है।” दूसरे व्यक्ति को उन्होंने अपना सहायक नियुक्त कर लिया। भविष्य में वही युवक उनका दायँ हाथ बना और उन्हें अति प्रिय लगने लगा।

- (i) आचार्य को कैसे सहायकों की आवश्यकता थी और क्यों ? [2]
- (ii) आचार्य की निराशा का क्या कारण था ? निराश होकर उन्होंने क्या किया ? [2]
- (iii) आचार्य ने दोनों युवकों की परीक्षा लेने का क्या उपाय सोचा तथा क्यों ? [2]
- (iv) दूसरा युवक रसायन क्यों तैयार नहीं कर सका ? इससे उसके चरित्र का कौन-सा गुण स्पष्ट होता है ? [2]
- (v) आचार्य ने अपना सहायक किसे और क्यों चुना ? [2]

Question 4.

Answer the following questions according to the instructions given :-

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए :

- (i) निम्नलिखित शब्दों के विशेषण बताइए—रसायन, नुकसान। [1]
- (ii) निम्नलिखित शब्दों में से किसी एक शब्द के दो-दो पर्यायवाची शब्द लिखिए:—बाधा, पीड़ा। [1]
- (iii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विपरीतार्थक शब्द लिखिए:—
अंत, पवित्र, निराशा, भविष्य। [1]
- (iv) भाववाचक संज्ञा बनाइए—
अतिथि, निपुण। [1]
- (v) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए:—
टका सा जवाब देना, सिक्का जमाना। [1]
- (vi) कोष्ठक में दिए गए वाक्यों में निर्देशानुसार परिवर्तन कीजिए—
(a) अंत में आचार्य निराश हो गए। [1]
(‘आशा’ शब्द का प्रयोग कीजिए)
(b) वह मुझे अति प्रिय लगने लगा। [1]
(वाक्य को भविष्यत् काल में बदलिए)
(c) उसका कार्य प्रशंसा के योग्य था। [1]
(रेखांकित के स्थान पर एक शब्द का प्रयोग करते हुए वाक्य पुनः लिखिए)

ANSWERS

SECTION 'A'

Answer 1.

- (i) भारतीय तथा पाश्चात्य संस्कृति से
अपनाने योग्य बातें

जब दो विभिन्न संस्कृतियाँ परस्पर मिलती हैं तब एक नवीन एवं विचित्र परिस्थिति उत्पन्न होती है। आम लोग न तो एक-दूसरे के जीवन सम्बन्धी दृष्टिकोण को समझ पाते हैं, न भाषा को, न वेशभूषा और न रीति-रिवाजों को। जैसे-जैसे वे एक-दूसरे के सम्पर्क में आते हैं वे एक-दूसरे की सभ्यता से शनैः-शनैः परिचित होने लगते हैं। साथ ही दोनों ही संस्कृतियाँ एक-दूसरे से प्रभावित होने लगती हैं।

भारतवर्ष के पवित्र धरा धाम पर अंग्रेजों का आधिपत्य हुआ। धीरे-धीरे प्राचीन भारतीय सभ्यता व संस्कृति पर उनका प्रभाव पड़ने लगा। भारतीय संस्कृति की पृष्ठभूमि में त्याग और तपस्या, दया और दान, संतोष एवं शान्ति का महत्वपूर्ण स्थान रहा है। विदेशी संस्कृति में मुख्य रूप से भोगवाद एवं भौतिकवाद का स्थान प्रबल था। फलस्वरूप भारतीय उनकी उस संस्कृति में रंगने लगे। उन्होंने भी अपने जीवन का दृष्टिकोण अंग्रेजी संस्कृति के अनुरूप बना लिया।

प्रत्येक राष्ट्र का रहन-सहन उस राष्ट्र के वातावरण के अनुकूल होता है। अंग्रेजों का देश शीत प्रधान है, इसीलिए वे कोट-पैट, टाई, हैट व चुस्त कपड़े पहनते हैं। जबकि भारत देश उष्णता प्रधान है, अतः यहाँ ढीले-ढाले कपड़े, कुर्ता-पाजामा आदि पोशाकें पहनते थे। अंग्रेजों की नकल करके भारतीयों ने भी उनकी पोशाकें पहनना स्वीकार कर लिया। इस प्रकार भारतीय सभ्यता व संस्कृति अब अंग्रेजी सभ्यता व संस्कृति में ढलने लगी।

एक दिन वह था जब भारत को विश्व गुरु की उपाधि से सम्बोधित किया जाता था। देश-विदेश के विद्वान यहाँ अध्यात्मवाद की शिक्षा लेने आते थे। आज समय बदल गया है। आज का भारतीय तब तक उच्चकोटि की श्रेणी में नहीं आता जब तक उसके पास कोई विदेशी डिग्री न हो। भारत का गौरव ही बदल गया है। आज न वह त्याग है, न तपस्या, न दया, न दान, न सहानुभूति, न सहयोग और न ही संवेदनशीलता का कहीं नाम है। अंग्रेजी संस्कृति ने पूर्ण रूप से त्यागी भारत को स्वार्थी और लालची बना दिया। हर सिक्के के दो पहलू होते हैं। इस बात में तनिक भी सन्देह नहीं कि विदेशी आक्रमणों से हमारी सभ्यता एवं संस्कृति आहत हुई है, तथापि हमारा देश विकासशील देशों की कतार में सिर ऊँचा किये खड़ा है, इस सत्य को भी हम नकार नहीं सकते। आज हमारे देश में जो

विज्ञान का चमत्कार हुआ है, उससे हमें जीवनदायिनी शक्ति प्राप्त हुई है। आधुनिक मानसिकता ने भारत के पिछड़ेपन को दूर किया है। सड़ी-गली मान्यताओं और अन्धविश्वासों से छुटकारा दिलाया है। भारत की इस आशातीत उन्नति एवं सर्वव्यापकता का श्रेय पिछली चार शताब्दियों को जाता है जिसमें क्रमशः जापान, जर्मनी, इंग्लैण्ड, रूस एवं अमेरिका आदि देशों का प्रयास सर्वथा प्रशंसनीय रहा है। आज पाश्चात्य सभ्यता व संस्कृति का ही प्रभाव है जिसने हमारे जीवन सम्बन्धी शिक्षण, चिकित्सा, यातायात, संचार आदि सभी क्षेत्रों को उन्नति के शिखर पर पहुँचाया है। इसी प्रकार दवाई, इंजेक्शन, एक्स-रे, विद्युत चिकित्सा, हृदय रोपण (पेसमेकर) कृत्रिम गर्भाधान, टेस्ट ट्यूब बेबी, प्लास्टिक सर्जरी आदि सभी पाश्चात्य सभ्यता से मिली प्रेरणा की ही देन हैं।

आज समाचार भेजने के अनेक तरीके फैंक्स, ई-मेल आदि तकनीकी की ही देन हैं। मोबाइल फोन, इन्टरनेट, कम्प्यूटर यह सब वैश्वीकरण से ही सम्भव हो पाया है। आज मनुष्य के कदम जमीन पर ही सीमित नहीं हैं वह आकाश में उड़ रहा है। अतः पाश्चात्य संस्कृति की इन बातों को अपनाना हितकारी है।

(ii) खेलों में फैला भ्रष्टाचार तथा प्रिय खेल

“आज खेलों में फैला भ्रष्टाचार एक नया ही रूप ले रहा है।” यह कथन असत्य नहीं है। वैसे तो भ्रष्टाचार ने मनुष्य को सर्वांगीण रूप से अपने जाल में जकड़ लिया है, परन्तु खेलों में फैले भ्रष्टाचार के कारण अक्सर हमारे देश की छवि विदेशों में बिगड़ती दिखाई देती है। इसके लिए हमें अनेक बार मुँह की खानी पड़ती है। खेलों में शुरुआत से ही भ्रष्टाचार के दर्शन होते हैं। विशेष तौर पर खिलाड़ियों के चयन में चयनकर्ताओं का पक्षपातपूर्ण रवैया, जिसका आधार कभी क्षेत्रीयता तो कभी भाई-भतीजावाद तो कभी जातिवाद या कभी धन का लालच होने से योग्य खिलाड़ियों का चयन टीम में नहीं हो पाता है। कभी-कभी टीम के कप्तान विपक्षी टीम से पैसे लेकर अपनी ही टीम को पराजित करवा देते हैं। ‘स्पोर्ट फिक्सिंग’ और ‘मैच फिक्सिंग’ इन शब्दों से खेलों में भ्रष्टाचार के दर्शन होते हैं। इन कार्यों में भारत को ही नहीं अपितु विदेशी खिलाड़ी भी समय-समय पर दोषी पाये गये हैं।

मेरा प्रिय खेल क्रिकेट है। अन्तर्राष्ट्रीय खेल प्रतियोगिताओं में क्रिकेट का बहुत महत्व है। यह एक खुले मैदान में खेला जाने वाला (आउटडोर) खेल है। इसका सबसे बड़ा लाभ यह होता है कि इन राष्ट्रों में पारस्परिक वैमनस्य समाप्त होकर मित्रता की भावना बढ़ती है।

क्रिकेट की पिच 22 गज लम्बी और 9 फीट चौड़ी होती है। उसके दोनों किनारों पर तीन-तीन विकेट जमीन में गड़े हुए होते हैं। दो टीमों में मैच होता है। ग्यारह-ग्यारह खिलाड़ी होते हैं। एक पारी में बल्लेबाजी करने वाली टीम के दो खिलाड़ी बल्लेबाजी करते हैं। विपक्षी टीम से एक बॉल फेंकता है तो बाकी दस क्षेत्ररक्षण करते हैं।

अन्तर्राष्ट्रीय स्तर पर क्रिकेट तीन रूपों में खेला जाता है—एक दिवसीय, टी-20 व पाँच दिवसीय टेस्ट मैच। एक दिवसीय मैचों में एक दिन में नतीजा निकल आता है। इसमें दोनों टीमों पचास-पचास

ओवर खेलती हैं। टी-20 मैचों में दोनों टीमों बीस-बीस ओवर खेलती हैं। आजकल क्रिकेट का यह प्रारूप सबसे अधिक लोकप्रिय है। पाँच दिवसीय मैचों में दोनों टीमों दो-दो बार खेलती हैं। इसकी कई अन्तर्राष्ट्रीय प्रतियोगिताएँ होती हैं। इसमें सर्वाधिक लोकप्रिय विश्व कप है। यह चार वर्ष बाद आयोजित किया जाता है। प्रथम विश्व कप 1975 में इंग्लैण्ड में आयोजित हुआ, उसे वेस्टइंडीज ने जीता। 1979 में दूसरा विश्व कप इंग्लैण्ड में हुआ, यह भी वेस्टइंडीज ने ही जीता था। 1983 में तीसरा विश्व कप इंग्लैण्ड में ही हुआ उसे भारत ने जीता। 1987 में चतुर्थ विश्व कप (भारत व पाकिस्तान में) आयोजित हुआ, ऑस्ट्रेलिया ने जीता, 1992 में पाँचवाँ विश्व कप ऑस्ट्रेलिया व न्यूजीलैण्ड में आयोजित हुआ, जिसे पाकिस्तान ने जीता व 1996 में आयोजित छठवाँ विश्व कप (भारत-पाकिस्तान-श्रीलंका) श्रीलंका ने जीता। सातवाँ विश्व कप 1999 में इंग्लैण्ड में हुआ जिसमें आस्ट्रेलिया ने भारत को हराकर कप पर कब्जा किया। नौवाँ विश्व कप 2007 में वेस्टइंडीज में हुआ जिसे ऑस्ट्रेलिया ने जीता। दसवाँ विश्व कप 2011 में दक्षिण एशिया के तीन देश भारत, श्रीलंका तथा बांग्लादेश में आयोजित किया गया जिसे भारत ने जीता था। 11वाँ विश्व कप 2015 में आस्ट्रेलिया में हुआ जिसे आस्ट्रेलिया ने ही जीता। साल 2019 का विश्व कप इंग्लैण्ड में हुआ जिसे इंग्लैण्ड ने ही जीता। मेरे प्रिय खिलाड़ी हैं कपिल देव, सचिन तेंदुलकर, वसीम अकरम, एम. एस. धोनी तथा राहुल द्रविड़।

जीवन में खेल अत्यन्त आवश्यक है। खेलों का व्यक्तिगत और सामाजिक दोनों महत्व है। खेल जहाँ मनुष्य को स्वस्थ रखते हैं, वहीं उनमें मित्रता, सहयोग, संवेदनशीलता की भावना का विकास करते हैं। खेल मनोरंजन का सशक्त साधन है। खेल मन व मस्तिष्क को ताजगी और शरीर को शक्ति प्रदान करते हैं। खेलों से मनुष्य के हृदय की उदारता बढ़ती है व मानसिक संकीर्णता कम होती है। खेल से मनुष्य में आत्म-विश्वास, सहनशीलता, अनुशासन व धैर्य जैसे गुणों का विकास होता है। अतः मानव जीवन में खेल अत्यन्त आवश्यक है।

(iii) ‘जीवन में घटी एक हास्यास्पद घटना’

कभी-कभी मानव जीवन में ऐसी घटनाएँ घटती हैं जो अपनी अमिट छाप छोड़ जाती हैं। ये घटनाएँ दुःखद भी होती हैं और सुखद भी। जब कभी स्मृति पटल पर इनकी पुनरावृत्ति होती है तब ये हमारे मस्तिष्क पटल पर जीवन्त रूप में प्रकट हो जाती हैं।

कहा जाता है कि मनुष्य का बचपन उसकी सबसे सुखद अवस्था होती है। उसी अवस्था में विद्यालय के खट्टे-मीठे अनुभव उसकी स्मृति बन जाते हैं। उन्हीं दिनों की यह घटना है, जिसे याद करके मैं सोचने के लिए विवश हो जाता हूँ कि काश वे दिन फिर से जीवन में आ जाते। बात उन दिनों की है जब मैं कक्षा छः का विद्यार्थी था। हमारे विद्यालय में यूँ तो बहुत सारे कार्यक्रम समय-समय पर आयोजित किये जाते थे, परन्तु हम बच्चों के लिए बाल दिवस अर्थात् जवाहरलाल नेहरू जयन्ती 14 नवम्बर एक विशेष दिवस हुआ करता था। इस दिन हमारे अध्यापकों एवं अन्य कर्मचारियों के द्वारा कुछ विशेष कार्यक्रम आयोजित किये जाते थे। इसमें

प्रधानाचार्य का भी कार्य अत्यन्त प्रशंसनीय होता था। बच्चों के मनोरंजन के लिए जब अध्यापक आदि सभी विभिन्न प्रकार के सांस्कृतिक कार्यक्रम जैसे नाटक, गीत, नृत्य आदि प्रस्तुत करते थे तब हमें बहुत अच्छा लगता था। हम लोग बहुत उत्सुक रहते थे यह जानने के लिए कि हमारे गुरुजन हमारे लिए क्या कार्यक्रम प्रस्तुत करेंगे।

उस समय एक फिल्मी गाना 'कजरारे कजरारे तेरे नैना' अपनी चरम सीमा पर था। इस गाने की सब जगह धूम थी। अचानक हमारी वरिष्ठ अध्यापिका ने लाउडस्पीकर पर यह घोषणा की कि "अब आपके समक्ष एक नृत्य प्रस्तुत किया जाने वाला है।" सभी दिल धामकर बैठ गये तथा प्रतीक्षा करने लगे कि आखिर इस नृत्य को कौन करने वाला है? तभी पर्दा हटा तो क्या देखता हूँ कि हमारे पीटी मास्टर और चतुर्थ श्रेणी के दो कर्मचारी लहंगा चोली पहन कर स्टेज पर आये और ऐश्वर्या राय, अमिताभ बच्चन और अभिषेक बच्चन की नृत्य मुद्रा में ही 'कजरारे कजरारे कजरारे तेरे नैना' गीत पर जोरदार नृत्य करने लगे। उनके मुख के हाव-भाव तथा मटकती कमर को देखकर सभी छात्र हँस-हँसकर लोट-पोट हो गये। सारे बच्चे ताली बजा-बजाकर उनका उत्साह बढ़ा रहे थे और वे तीनों नृत्य में इतने मग्न थे कि उन्हें किसी की परवाह ही नहीं थी। लगभग 15 मिनट तक वे तीनों नृत्य करते रहे। पूरा वातावरण तालियों की गड़गड़ाहट से गूँज उठा था। ऐसा मनोरंजक नृत्य, वह भी पुरुषों के द्वारा मैंने कभी नहीं देखा था। उनके नृत्य की वह छवि मेरे नेत्रों में बस गई थी।

आज भी जब 14 नवम्बर अर्थात् 'बाल दिवस' का दिन आता है तब उस नृत्य की याद करके मैं हँसे बिना नहीं रह पाता।

उन तीनों लोगों ने हमारा जो मनोरंजन किया उसे याद करके मुझे ऐसा लगता है कि हमें भी ऐसा बनना चाहिए कि हम भी किसी का मनोरंजन करके लोगों को हँसा सकें। 'हँसो और हँसाओ' हमारे जीवन का सिद्धान्त होना चाहिए। हँसने से मनुष्य स्वस्थ रहता है।

(vi) "जाको राखे साइयाँ मार सके न कोय"

जिसकी रक्षा भगवान करता है उसका कोई बाल भी बाँका नहीं कर सकता। कहते हैं कि, सच्चा सन्त प्रारब्ध को भी कम कर सकता है और 'होनी' को भी टाल सकता है। 'सन्त' ईश्वर का ही प्रतीक होता है। वह निरन्तर ईश्वर की सेवा में रहता है इसलिए ईश्वर उसकी हर इच्छा को पूरा करते हैं। सन्त शिरोमणि रामदास के पास एक बालक उनकी शिष्यता ग्रहण करने के लिए आया। समर्थ रामदास ने बालक के तेज को पहचान कर उसे अपना शिष्य बना लिया। एक दिन प्रातः वह बालक भिक्षा माँगने एक गाँव में गया। उस गाँव में एक तांत्रिक रहता था जो स्वभाव से क्रोधी था। गाँव के कुछ शरारती बच्चों ने उस बालक को उसी के घर का दरवाजा दिखा दिया कि वह वहाँ से भिक्षा माँगे। बालक ने ऐसा ही किया। तांत्रिक जो पूजा कर रहा था उठकर आया और बोला कि यहाँ क्यों आया है? बालक ने उत्तर दिया कि गुरु की आज्ञा से भिक्षा माँगने आया हूँ। तांत्रिक ने भिक्षा की जगह तीन प्रश्न पूछे कि वह अपने गुरु से पूछ कर बताये—(i) सूर्य से बड़ा कौन है? (ii) पृथ्वी से महान् कौन है? और (iii) होनी को कौन टाल सकता है?

वह बालक अन्य घरों से भिक्षा माँगकर वापस आया और गुरु के

लिए भोजन बनाया। उसने गुरु को तीनों प्रश्नों को बता दिया। गुरु ने मुस्कराकर कहा कि कल सुबह उसी दरवाजे पर जाना और उससे कहना—(i) सूर्य से बड़ा पिता है, (ii) पृथ्वी से महान माता है। (iii) तीसरे प्रश्न का उत्तर गुरु जी स्वयं आपको देंगे। बालक ने अगले दिन जाकर ऐसे ही कह दिया। तांत्रिक क्रोधित हुआ और शाप दिया कि जा कल सुबह सूरज निकलने से पहले तू मर जायेगा अपने गुरु से कह देना। यह सुनकर बालक के तो होश उड़ गये और किसी प्रकार डरते-डरते भिक्षा लेकर वापस आया और गुरु के लिए भोजन बनाया और उनको खिलाया। गुरु जी समझ गए और उससे पूछा कि बालक आज तुम्हारे चेहरे का रंग क्यों उड़ गया है? बालक ने सारी बात बता दी। गुरु जी यह कहकर विश्राम करने चले गए कि अभी कल होने में तो बहुत देर है अभी से क्यों चिन्ता करता है, परन्तु बालक को चैन कहाँ? शाम हुई। शाम का भोजन बना। गुरु जी ने खाया। बच्चे ने डर के मारे न दोपहर को न शाम को कुछ नहीं खाया। गुरु जी ने बहुत समझाया कि सुबह होने में तो बहुत देर है अभी से चिन्ता क्यों करता है? अब गुरु जी शयन करने लगे और उस बालक से कहा कि तू मेरे पैर दबाता रह और जब तक मैं न कहूँ कहीं जाना मत। बालक पैर दबाता रहा। आधी रात में उस तांत्रिक ने अपनी सिद्ध की हुई यक्षिणी को उस बालक को मारने के लिए भेजा। वह वहाँ आई लेकिन गुरु के तेज के कारण उसके पास न जा सकी। उसने बालक की माँ का भेष बनाया और खीर का कटोरा लेकर बोली—“बेटा! तू बहुत दिनों से घर नहीं आया है, ले मैं तेरे लिए खीर लाई हूँ खीर खा ले।” बालक ने उत्तर दिया—“माँ! गुरु जी सोए हुए हैं और उनकी आज्ञा बिना मैं तेरे पास नहीं आ सकता। ला यहीं आकर खीर दे दे।” लेकिन वह यक्षिणी गुरु जी के पास नहीं आई। फिर थोड़ी देर बाद उसके पिता के रूप में आई और डाँट कर कहा, “अरे पुत्र! तूने माँ को लौटा दिया। आ मेरे पास आ।” पर बालक गुरु जी के पैर छोड़कर नहीं गया। थोड़ी देर में वह शक्ति क्रोधित हो उस तांत्रिक के पास गई और बोली—“दुष्ट तूने आज एक सन्त का अहित करने भेजा जो मैं न कर पाई। अब मैं तेरे पास से जा रही हूँ।”

सुबह हुई। सूरज निकला। गुरु जी उठे और बोले—“अरे बालक तू तो जिन्दा बैठा है। तुझे तो इस समय तक मर जाना चाहिए।” तब तक शिष्य गुरु की शक्ति समझ चुका था। उसकी अश्रुधारा बहने लगी और गुरु के चरणों को धोने लगी। तभी वह तांत्रिक गुरु जी के चरणों में आकर गिर गया। गुरु जी बोले—“हे तांत्रिक! तेरे तीसरे प्रश्न का उत्तर यह है कि होनी को भी सच्चा सन्त टाल सकता है।” सच ही कहा है कि—

“जाको राखे साइयाँ मार सके नहिं कोइ।

बाल न बांका कर सके जो जग बैरी होइ।।”

(v)

चित्र प्रस्ताव

प्रस्तुत चित्र में कुछ स्त्रियाँ दिखाई दे रही हैं। वे एक नलकूप (सबमर्सिबल) से पानी भर रही हैं। समर के पाइप में एक पॉलीथिन बाँध रखी है, क्योंकि समर के पानी का बहाव तेज होता है। पॉलीथिन से पानी भरना आसान हो जाता है। नलकूप के पास पानी भरने के लिए बहुत सारे बर्तन और प्लास्टिक की केन भी

रखी हुई हैं। स्त्रियों के पीछे एक आदमी बाल्टी लेकर इसी ओर आता दिखाई दे रहा है। इस चित्र को देखकर स्पष्ट प्रतीत होता है कि हमारे देश में जल का भयंकर संकट है। मनुष्य के शरीर की नसों के समान भारत में असंख्य नदियाँ बह रही हैं तथापि यहाँ पानी का अभाव है। लोग पानी की खोज में कभी इस नल पर कभी उस हैंडपंप पर तो कभी कहीं और भटकते फिरते हैं। पानी कितना आवश्यक है, इस बात को स्पष्ट करते हुए स्वयं कवि रहीम ने लिखा है—

रहिमन पानी राखिये, बिन पानी सब मून।

पानी गये न ऊबरे, मोती मानुस चून।।

जल विश्व का अति विलक्षण द्रव्य है। सृष्टि के आदिकाल से ही जब ईश्वर ने संसार की रचना की उसके जीवन का आधार जल बना। आज यह अत्यन्त खेद का विषय है कि ईश्वर प्रदत्त इस अथाह प्राकृतिक सम्पदा का ही जीवन में अभाव हो गया है। ईश्वर ने जल स्रोतों की कमी नहीं की, परन्तु मनुष्य ने उन जल स्रोतों को नुकसान पहुँचाकर अपने पैरों पर खुद कुल्हाड़ी मारी है। जल की आवश्यकता केवल मनुष्यों को ही नहीं है अपितु इसकी आवश्यकता सृष्टि के हर जीव को, कीट-पतंगों और वनस्पति को भी है। पीने योग्य जल की गुणवत्ता में गिरावट, जल स्रोत की ऊँचाई में अचानक वृद्धि या कमी, जल स्रोतों का अप्रत्याशित रूप से घटना अथवा बढ़ना जल-संकट का हिस्सा है।

आज जल के अभाव की जो स्थिति है उसे देखकर प्रतीत होता है कि यदि यही हाल रहा तो निकट भविष्य में जल न मिलने के कारण प्राणियों की मृत्यु हो सकती है।

बड़े-बड़े चौराहों पर पानी के लिए लम्बी लम्बी कतारें, सिर पर घड़ों में दूर से पानी लाती महिलाएँ, जगह-जगह पर देखी जा सकती हैं। आज नलकूपों का जल-स्तर काफी नीचे जा चुका है। नदियाँ भी पानी की कमी के कारण कृशकाय दिखाई पड़ती हैं। जो देश-प्रकृति का पालना कहा जाता था, वहीं पर जल की कमी होना बड़ा हास्यास्पद विषय है।

यह बड़ा गम्भीर चिन्तन का विषय है कि इस अथाह जल सम्पदा का नाश अचानक कैसे हो गया? आखिर, इसका क्या कारण है? इसका मुख्य कारण दिन-प्रतिदिन वृक्षों की कटाई है। वृक्षों की कटाई से वर्षा बाधित हुई है। जब समय पर वर्षा ही नहीं होगी तो नदियों में पानी कहाँ से आयेगा? अति प्राचीन काल से ही हमारे देश में वृक्षों का आध्यात्मिक महत्व रहा है। इनकी पूजा-अर्चना की जाती रही है। यह मानव जीवन की सुख-समृद्धि के साधक हैं। यही वृक्ष बादलों का आह्वान करते हैं, परन्तु दुर्भाग्य की बात है कि जब जंगल ही कट जायेंगे तो आह्वान कौन करेगा? जल संकट के मूल में यही बात महत्वपूर्ण है। वृक्षों की कटाई ने प्राकृतिक संतुलन बिगाड़ दिया। अनावृष्टि, अतिवृष्टि, चक्रवात, भूस्खलन और भूकम्प आदि सभी वृक्षों की कटाई के परिणाम हैं। खैर, कारण कुछ भी हो, परन्तु सच्चाई तो यह है कि आज प्राणि जगत के समक्ष जल की एक ज्वलन्त समस्या है जो दिनों दिन सुरसा के मुख की तरह बढ़ रही है।

प्रशासन शायद आम आदमी की इस परेशानी से अनभिज्ञ है। उसका कारण साफ-साफ उनके जीवन में इस अनुभव की कमी है। कहा भी गया है—

“जाके पैर न फटी बिवाई, वो क्या जाने पीर पराई”

किसी भी समस्या का समाधान तो करना ही पड़ता है और यह असम्भव भी नहीं है। सरकार को जनता की इस परेशानी को समझना चाहिए। सरकार को चाहिए कि बाढ़ वाले क्षेत्रों के जल-संचय हेतु बड़े-बड़े बैराज बनाये और जलाभाव वाले क्षेत्रों में उसे वितरित कराये। यह जल संकट को कम करने का सशक्त साधन साबित होगा, साथ ही जल का सदुपयोग होगा। जो लोग सीवर की लाइन या शहर की गन्दगी नदियों में बहाते हैं उनके विरुद्ध सरकार को कठोर कदम उठाने चाहिए। इससे जल प्रदूषण रोका जा सकता है।

जल ईश्वर की अमूल्य सम्पदा है जो मानव मात्र के लिए सहज उपलब्ध होनी चाहिए यदि ऐसा नहीं है तो यह बड़ी लज्जा की बात है। इसलिए इसे हर मनुष्य को अबाध गति से प्राप्त कराना चाहिए।

Answer 2.

(i) सेवा में,
श्रीमान् पर्यटन अधिकारी,
लखनऊ, उत्तर प्रदेश।

विषय—लखनऊ के दर्शनीय स्थलों की जानकारी प्राप्त करने हेतु।

माननीय महोदय,

इस पत्र के माध्यम से मैं आपसे लखनऊ शहर के दर्शनीय स्थलों की जानकारी प्राप्त करना चाहता हूँ। मैं व मेरे मित्र लखनऊ शहर के दर्शनीय स्थलों की यात्रा करना चाहते हैं। लखनऊ उत्तर प्रदेश की राजधानी है तथा लखनऊ को कभी ‘सोने की नगरी’ और ‘शिराज ए-हिंद’ भी कहा जाता था। मैंने सुना है वहाँ पर चिड़ियाघर तथा कुछ ऐतिहासिक स्थल भी हैं, जिसको देखकर हमारे ज्ञान का विकास हो सकता है।

इस समय मेरी आई. सी. एस. ई. की परीक्षाएँ समाप्त हो चली हैं अतः छुट्टियों का सदुपयोग करने का यह अच्छा अवसर है। अतः आपसे विनम्र निवेदन है कि मैं और मेरे मित्र इस स्थान का मनोरंजन पूर्ण अवलोकन कर सकें इसके लिए आप मुझे पत्र द्वारा जानकारी देकर मेरी सहायता करें। इसमें विशेष रूप से ठहरने के उपयुक्त स्थानों की जानकारी देकर मुझे कृतार्थ करें। आपकी अति कृपा होगी।

सधन्यवाद।

भवदीय

प्रवीण गुप्ता

19, सिविल लाइन्स

सूरसदन, आगरा-2

दिनांक : 24-3-20XX

(ii) 47, कमला नगर,

आगरा।

दिनांक : 24.3.20XX

प्रिय अनुज शुभम्,

शुभ आशीर्वाद।

हम सब यहाँ कुशल हैं और तुम्हारे कुशल रहने की कामना करते हैं। आगे समाचार यह है कि दो दिन पहले मैं किसी काम से दिल्ली आया था तब मेरी भेंट तुम्हारे कक्षाध्यापक से हुई थी। वह बता रहे थे कि तुम आजकल मोबाइल फोन पर बातें करने में अपना अधिकांश समय व्यतीत कर रहे हो। शुभम् यह अच्छी बात नहीं है, विशेष तौर पर विद्यालय में मोबाइल लाना मना है और तुम नियम तोड़ने का कार्य कर रहे हो। यह उचित नहीं है।

पिताजी ने खर्च की परवाह न करके तुम्हें अच्छी शिक्षा प्राप्त करने दिल्ली भेजा है। अतः तुम ईमानदारी से अपनी पढ़ाई करो। मोबाइल पर अधिकांश बातें तुम्हारे दोस्तों से ही होती होंगी। शायद तुम्हें पता नहीं है कि अधिक मित्रता अध्ययन में सबसे बड़ी बाधा है। मोबाइल से दोस्ती बढ़ेगी और समय बर्बाद होगा। जब पढ़ने बैठोगे, मोबाइल बजेगा, पढ़ाई चौपट हो जायेगी। ये मोबाइल फोन रात में भी नहीं सोने देते। मैं तुम्हारा अर्द्ध वार्षिक परीक्षाफल देखकर चौंक गया था। अध्यापक के बताने पर ही पता चला कि मोबाइल के कारण ही तुम्हारे अंक कम आये हैं। पिताजी ने मोबाइल तुम्हें इसलिए दिया था ताकि तुम घर पर समाचार बताते रहो। सच्चाई तो यह है कि विद्यार्थी जीवन में विद्यार्थी के लिए मोबाइल का यही सदुपयोग है। इसलिए अपना नं. बदलो और किसी को नया नं. मत दो जिससे तुम्हारे मित्र तुम्हारे अध्ययन में दखलन्दाजी न करें। ईमानदारी से अपनी पढ़ाई करो। माता-पिताजी का तुम्हें प्रेम भरा आशीर्वाद।

तुम्हारा अग्रज
रूपम

Answer 3.

- (i) आचार्य नागार्जुन को अपनी प्रयोगशाला के लिए दो सहायकों की आवश्यकता थी जो उनके कार्य में हाथ बँटा सकें, लेकिन वह यह चाहते थे कि उन सहायकों में एक पवित्र ध्येय होना चाहिए तभी वे ईमानदारी से कार्य कर सकेंगे।
- (ii) आचार्य के पास अनेक युवक आये और उनसे सहायक बनाने की विनती करने लगे। आचार्य को प्रतीत हुआ कि उन युवकों को रसायन शास्त्र का अच्छा ज्ञान था, अपने विषय से भली-भाँति परिचित थे, परन्तु उनका एक पवित्र ध्येय का अभाव था। किसी को अपने वेतन की, किसी को परिवार की, तो किसी को अपने भविष्य को उज्ज्वल बनाने की चिन्ता थी। उनके मन और विचार में कुछ और ही था। यह जानकर आचार्य निराश हो गये। निराश होकर उन्होंने स्वयं ही सारा काम करने का निश्चय कर लिया।

(iii) कुछ दिन बाद आचार्य के पास दो युवक पुनः प्रयोगशाला के सहायक बनने के लिए आये और उन्होंने प्रार्थना की कि आचार्य उन्हें सहायक नियुक्त कर लें। आचार्य ने दोनों को एक पदार्थ देकर दो दिन के भीतर ही उसका रसायन तैयार कर लाने को कहा। वह इस परीक्षा के माध्यम से दोनों युवकों के मन और विचार जानना चाहते थे। वह जानना चाहते थे कि उन दोनों में पवित्र ध्येय है या नहीं।

(iv) दूसरा युवक रसायन इसलिए तैयार नहीं कर सका, क्योंकि जाते समय मार्ग में उसे एक बूढ़ा व्यक्ति मिल गया था। वह एक सड़क दुर्घटना में घायल हो गया था। उसकी सेवा-सुश्रूषा में ही उसका सारा समय व्यतीत हो गया। इससे उसके चरित्र में स्थित दुःखीजनों की सेवा और कर्तव्यपरायणता के गुणों का पता चलता है।

(v) आचार्य ने दूसरे युवक को अपना सहायक चुना, क्योंकि उनका मानना था कि यदि रसायनशास्त्री पीड़ा से कराहते व्यक्ति की उपेक्षा करे तो वह अपने शास्त्र में अपूर्ण है। भविष्य में वही युवक उनका दायँ हाथ बनकर उनका प्रिय बना।

Answer 4.

(i) रसायन — रासायनिक, नुकसान — नुकसानदायक,

(ii) बाधा — अड़चन, विघ्न

पीड़ा — दर्द, कष्ट

(iii) अंत — आदि पवित्र — अपवित्र

निराशा — आशा भविष्य — भूत।

(iv) अतिथि — आतिथ्य निपुण — निपुणता।

(v) (1) टका सा जवाब देना—(साफ मना करना)—मैंने अपने मित्र से एक घण्टे के लिए पुस्तक माँगी थी परन्तु उसे भी पढ़नी थी, अतः उसने टका-सा जवाब दे दिया।

(2) सिक्का जमाना (प्रभावित करना)—मेरे मित्र ने नदी में डूबते बच्चे को बचाकर लोगों पर अपना सिक्का जमा लिया है।

(vi) (a) अंत में आचार्य को कोई आशा न रही।

(b) वह मुझे अति प्रिय लगेगा।

(c) उसका कार्य प्रशंसनीय था।

Section B is not given due to change in the present syllabus.

QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- अपने परिवार के किसी ऐसे सदस्य का वर्णन कीजिए, जिसने आपको प्रभावित किया हो। बताइए कि उस व्यक्ति के प्रभाव ने आपके जीवन को किस प्रकार परिवर्तित किया ? आपके गुणों को निखारने में और अवगुणों को दूर करने में उस व्यक्ति ने आपकी किस प्रकार सहायता की ?
- त्योहार हमें उमंग एवं उल्लास से भरकर अपनी संस्कृति से जोड़े रखते हैं। आजकल लोगों में त्योहारों को मनाने के प्रति उत्साह एवं आस्था का अभाव देखा जाता है। लोगों की इस मानसिकता के कारण बताते हुए जीवन में त्योहारों के महत्व का वर्णन कीजिए।
- वर्तमान युग में इंटरनेट अपनी उपयोगिता के कारण एक आवश्यकता बनता जा रहा है। इस विषय पर अपने विचार प्रकट कीजिए और बताइए कि इंटरनेट जीवन में सुविधा के साथ-साथ मुसीबत किस प्रकार बन जाता है।
- एक कहानी लिखिए जिसका आधार निम्नलिखित उक्ति हो—
“परिश्रम ही सफलता का सोपान है।”
- आगे दिये गये चित्र को ध्यान से देखिए और चित्र को आधार बनाकर वर्णन कीजिए अथवा कहानी लिखिए, जिसका सीधा व स्पष्ट सम्बन्ध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below :— [7]

निम्नलिखित में से किसी एक विषय पर हिन्दी में लगभग 120 शब्दों में पत्र लिखिये :—

- आपके क्षेत्र में सड़कों पर बहुत अधिक पानी जमा हो जाता है, क्योंकि अधिकांश सड़कें टूटी हुई हैं। जगह-जगह ‘स्पीड ब्रेकर’ यातायात में सहायक न होकर बाधक बन गए हैं। परिस्थिति की पूर्ण जानकारी देते हुए नगर निगम के अधिकारी को शिकायती पत्र लिखिए।
- आपके विद्यालय में कुछ अतिथि आए थे, जिनकी देखभाल की जिम्मेदारी आपको सौंपी गई थी। अपनी माताजी को पत्र लिखकर बताइए कि वे अतिथि विद्यालय में क्यों आए थे और आपने उनके लिए क्या-क्या किया ?

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible:—

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए। उत्तर यथासम्भव आपके अपने शब्दों में होने चाहिए :—

नामू की माँ ने अपने बेटे से कहा, “जा कुल्हाड़ी लेकर पलाश के पेड़ से कुछ छाल उतार ला।”

“अभी लाया माँ” कहकर नामू ने कुल्हाड़ी उठाई और जंगल की ओर निकल गया। वहाँ उसने पलाश के पेड़ की छाल उतारी और फिर घर की ओर चल पड़ा। रास्ते में विचार करने लगा कि जब मैं कुल्हाड़ी से पेड़ पर प्रहार करता था, तो एक आवाज पेड़ से निकलती थी, कहीं वह आवाज पेड़ की कराह तो नहीं थी ? जब मैं कुल्हाड़ी से पेड़ पर प्रहार करता होऊँगा, तो पेड़ को पीड़ा भी तो होती होगी।

नामू ने घर आकर पलाश की छाल माँ को सौंप दी और स्वयं घर से दूर कुल्हाड़ी लेकर जा बैठा। वहाँ बैठकर उसने कुल्हाड़ी से अपना पैर रगड़ना शुरू किया। रगड़ के साथ पाँव में पीड़ा भी होती थी, खून बहता था और नामू के मुँह से हल्की-हल्की चीखें भी निकलती थीं। यह सब उसने पेड़ की पीड़ा का अनुभव करने के लिए किया था।

कुछ देर बाद वह घर लौट आया और माँ से खाना माँगा। उसके चेहरे पर पीड़ा की स्पष्ट रेखाएँ उभर आई थीं, मगर वह चुप था। माँ ने देखा, लेकिन कुछ समझी नहीं। एकाएक माँ की दृष्टि उसके कपड़ों पर पड़ी, जो खून से लाल हो चुके थे। माँ ने घबराकर पूछा, “ये क्या हुआ, नामू ?”

“कुछ नहीं माँ, तुम चिन्ता मत करो।”

माँ और अधिक घबराकर बोली, “चिन्ता कैसे न करूँ बेटा, तेरे शरीर का खून देखकर मैं चिन्ता नहीं करूँगी, तो फिर और कौन चिन्ता करेगा ?”

नामू कहने लगा, “माँ तुमने पलाश की छाल मँगवाई थी, तो कुल्हाड़ी से छाल उतारते हुए, मुझे ऐसा अनुभव हुआ कि पेड़ कराह रहा है और जैसे उसे पीड़ा हो रही है। अपने पाँव पर कुल्हाड़ी की रगड़ से मैं यह जानना चाहता था कि क्या सभी को एक-सी पीड़ा होती है ?”

बेटे की बात सुनकर, माँ का हृदय भर आया। माँ की आँखों से आँसुओं की धारा बह निकली। उसने नामू को गले लगाते हुए कहा, “लगता है, मेरे पुत्र के रूप में किसी संत ने जन्म लिया है। बेटे, तू पराये दुःख से दुःखी होकर, उस दुःख का अनुभव करना चाहता था; पराया दुःख भी पेड़ का, जिसमें तुझे प्राण दिखाई दिये। अवश्य ही, तू एक दिन बड़ा संत बनेगा”। इस प्रकार माँ ने उसे संत बनने का आशीर्वाद दिया।

आगे चलकर यह ‘नामू’ नामदेव के नाम से महाराष्ट्र के प्रसिद्ध संत हुये।

वास्तव में दया, धर्म का भाव रखना और दूसरे के दुःख को महसूस करना संतों का स्वभाव होता है। आज अपने पर्यावरण को बचाने के लिए नामदेव जैसे संतों की आवश्यकता है, जिनके मन में न केवल जीवों के प्रति ही दया की भावना हो, बल्कि पेड़, पौधों के लिए भी अपनेपन का भाव हो। आज के स्वार्थी मानव ने प्रकृति के प्रति जिस प्रकार का व्यवहार किया है, वह निन्दनीय है क्योंकि मानव के लोभ ने धरती के अस्तित्व को ही संकट में डाल दिया है।

- (i) नामू को माँ ने क्या आदेश दिया था ? माँ के आदेश का पालन करते समय उसने क्या विचार किया ? [2]
- (ii) घर आकर नामू ने क्या किया और क्यों ? [2]
- (iii) माँ क्या देखकर चिन्तित हुई ? उसका हृदय क्यों भर आया ? [2]

(iv) संत के स्वभाव की क्या विशेषता होती है ? आगे चलकर नामू किस रूप में प्रसिद्ध हुआ ? [2]

(v) आपको इस गद्यांश से क्या शिक्षा मिली ? पेड़-पौधों की सुरक्षा क्यों आवश्यक है ? [2]

Question 4.

Answer the following questions according to the instructions given :—

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए:—

- (i) निम्न शब्दों से विशेषण बनाइए :— नीति, साहित्य। [1]
- (ii) निम्न शब्दों में से किसी एक शब्द के दो पर्यायवाची शब्द लिखिए :— मार्ग, माता। [1]
- (iii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विपरीतार्थक शब्द लिखिए:— [1]
निर्दोष, शांत, पतन, अन्त।
- (iv) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए— [1]
आँखों पर पर्दा पड़ना, घुटने टेकना।
- (v) भाववाचक संज्ञा बनाइए:— ईश्वर, उत्तम। [1]
- (vi) कोष्ठक में दिए गए निर्देशानुसार वाक्यों में परिवर्तन कीजिए:— [1]
(a) असफल हो जाने पर, उसे भारी दुःख हुआ। [1]
(वाक्य शुद्ध कीजिए)
- (b) परिश्रमी व्यक्ति विपत्तियों से नहीं घबराता है। [1]
(वचन बदलिए)
- (c) जीवन-भर मैं इसी आचरण का पालन करता आया हूँ। [1]
(रेखांकित शब्दों के लिए एक शब्द लिखकर वाक्य को पुनः लिखिए)

ANSWERS

SECTION 'A'

Answer 1.

- (i) “परिवार का वह सदस्य जिससे मैं प्रभावित हुआ”

परिवार बालक की प्रथम पाठशाला है और माता उसकी प्रथम गुरु होती है। वह जिस प्रकार से बालक को पोषित व पुष्पित करती है, वह उसी रूप में विकसित होकर समाज के समक्ष आता है। मेरे जीवन में भी मेरी माता की अहम् भूमिका है। पिता व्यापारी होने के कारण अधिक व्यस्त रहते थे। परिवार के अन्य लोगों से भी मेरी अधिक समीपता नहीं थी, परन्तु मेरी माता मेरे साथ परछाई की तरह रहती थीं। अतः मैं उनके आचरण से ही बहुत प्रभावित हुआ।

प्रातःकाल जल्दी उठना, ईश्वर वन्दना, परिवार के बड़े लोगों को प्रणाम करना, पुनः अपनी नियमित दिनचर्या का पालन करना, मुझे मेरी माता ने सिखाया। ‘प्रत्येक कार्य समय पर और तरीके से करना चाहिए तभी पूर्ण फल की प्राप्ति होती है।’ ऐसा मेरी माँ कहती थीं। जीवन में सदैव सच्चाई व ईमानदारी का पालन करना मैंने अपनी माँ से ही सीखा। असहाय, दीन-दुःखी जन की सहायता व सेवा करना मैंने अपनी माँ से सीखा। अपनी माता को प्रातःकाल से रात तक निरन्तर परिश्रम करते देख मुझमें परिश्रमी बनने की भावना

का विकास हुआ। किसी भी कार्य को पूरी ईमानदारी, लगन और परिश्रम से करता हूँ। मानव मात्र का सम्मान करने की भावना मुझमें माँ से आई। इसीलिए आज मैं सबके सम्मान का पात्र हूँ। मुझे याद है, मेरी माँ कहा करती थी बेटा जैसा बोओगे वैसा ही काटोगे।

मेरी माता ने सदैव ईश्वर में आस्था रखने की शिक्षा दी। मैं प्रतिदिन विद्यालय जाने से पूर्व देवालय में पूर्ण श्रद्धा से ईश्वर के समक्ष अपना मस्तक झुकाता हूँ। मेरी माता की शिक्षा का ही परिणाम है कि मैं अपना प्रत्येक कार्य समय से करता हूँ। अतः मेरा कोई कार्य अधूरा नहीं रहता है। स्वस्थ शरीर में स्वस्थ मस्तिष्क रहता है। यह मंत्र मुझे मेरी माता ने दिया, फलस्वरूप मैं नियमित व्यायाम करके स्वयं को स्वस्थ रखता हूँ। समय से प्रातःकाल जागना और समय पर रात को सोना जीवन को सफल बनाता है। इससे आप सदैव स्फूर्तिपुर्ण रहते हैं। यही कारण है कि मुझमें आलस्य लेशमात्र भी नहीं है।

अन्त में मैं यही कहूँगा कि मेरी माता गुणों की खान हैं और वे सारे गुण उसने मुझमें उड़ेल कर मेरा हित किया है ताकि मैं एक सम्पूर्ण व्यक्तित्व के रूप में उभर कर सामने आऊँ और जीवन के किसी भी मोड़ पर किसी भी संकट का सामना साहस से कर सकूँ।

(ii) “जीवन में त्योहारों का महत्त्व”

भारतवर्ष त्योहारों का देश है। इसका मुख्य कारण है कि यह धर्म-निरपेक्ष देश है, जहाँ अनेक धर्म एवं जाति के लोग रहते हैं। हर धर्म व जाति के अलग-अलग अनेक त्योहार होते हैं। इसलिए भारत में पूरे वर्ष त्योहारों का आयोजन होता रहता है। इस प्रकार यहाँ भारतीय संस्कृति के साथ-साथ अन्य जातीय संस्कृतियों के भी दर्शन होते हैं।

आधुनिक परिवेश में यदि हम देखें तो पता चलता है कि मनुष्य का जीवन अत्यन्त जटिल हो गया है। जीवन की आवश्यकताओं को पूरा करते-करते मनुष्य अपनी संस्कृति को भी भूलता जा रहा है। इसलिए संघर्षमय संसार की कटु स्मृतियों को क्षण-भर के लिए विस्मृत करने के लिए त्योहार मनाना अति आवश्यक है। त्योहार हमारे जीवन में बदलाव लाते हैं। ये हमें हमारी संस्कृति से जोड़ते हैं। परिवर्तनशीलता मानव का सहज स्वभाव है उसी में एक आकर्षण होता है। त्योहार जीवन में नवीनता लाते हैं।

आज यदि हम इस तथ्य पर विचार करें तो पाते हैं कि त्योहारों के प्रति मनुष्य का वह उल्लास आज कम हो गया है। उसका कारण है आज मनुष्य मन से प्रसन्न नहीं है। एक तरफ परिवार की असंख्य समस्याएँ और दूसरी ओर सुरसा की तरह मुँह फाड़े मँहँगाई। मनुष्य अपनी आवश्यकताओं को पूरा करते-करते इतना अधमरा हो जाता है कि उसकी त्योहार की खुशियाँ फीकी हो जाती हैं।

अपनी संस्कृति व त्योहारों के प्रति आस्था के अभाव का एक प्रमुख कारण पाश्चात्य सभ्यता का भारतीय संस्कृति पर हावी होना है। आधुनिकता के रंग में रंगे कुछ अमीर लोग प्राचीन परम्पराओं और भारतीय संस्कृति के अनुरूप त्योहार मनाना अपनी शान के खिलाफ समझते हैं। डी. जे. की धुन पर अपनी मर्यादा के विरुद्ध नृत्य करना उनके अनुसार सभ्यता है। परम्परागत त्योहारों को मनाना उनके लिए पिछड़ेपन का सूचक है। यही कारण है कि आज हमारे देश में नैतिक मूल्यों का बहुत बुरी तरह से पतन हुआ है।

हमारी भारतीय संस्कृति लोगों में प्रेम-भाईचारा, सहानुभूति, परस्पर सम्मान की भावना का संदेश देती है। छोटे, बड़ों का सम्मान करें तथा बड़े उन्हें आशीर्वाद दें। नारियों की अलग एक अस्मिता होती थी। पुरुष ही नहीं अपितु देवताओं का भी मानना था कि “यत्र नार्यस्तु पूज्यन्ते रमन्ते तत्र देवताः” आज केवल पाश्चात्य संस्कृति के कारण सब कुछ समाप्त हो गया है। आज कोई मर्यादा नहीं रही, कोई परम्परा नहीं रही, कोई त्योहारों के प्रति उल्लास नहीं रहा। इसीलिए आज भारतवासियों के जीवन में तनाव, असन्तोष व दरिद्रता है। असंख्य बीमारियों ने उन्हें घेर रखा है क्योंकि उनका आचरण ही भ्रष्ट हो गया है।

त्योहार शुद्ध मन से प्रसन्न होकर मनाने चाहिए क्योंकि त्योहार जीवन में खुशी देते हैं जिससे हम तन व मन से स्वस्थ होते हैं। मानव स्वभाव से ही उल्लास प्रिय प्राणी है। वह अपने जीवन का प्रत्येक क्षण आनन्द एवं सुख में बिताना चाहता है। त्योहार मानव के हर्षोल्लास की भावना के परिचायक हैं। त्योहारों से मानव-जीवन की उदासी और निराशा दूर होती है और मन में एक नया उत्साह और उमंग भर जाती है।

(iii) “इन्टरनेट का अभूतपूर्व योगदान व हानियाँ”

आवश्यकता आविष्कार की जननी है। यह कथन इन्टरनेट के सन्दर्भ में सही साबित होता है। आधुनिक समय में जहाँ समय का मूल्य बढ़ गया है वहीं इन्टरनेट की उपयोगिता महत्वपूर्ण हो गई है। आधुनिक समय में इन्टरनेट बहुत शक्तिशाली है। कम समय में जटिल से जटिल कार्य इनके द्वारा किया जा सकता है। इस समय इन्टरनेट का प्रयोग जीवन के सभी क्षेत्रों में हो रहा है। सुरक्षा सम्बन्धी क्षेत्रों के अलावा अब इसका व्यापक रूप से प्रयोग उद्योग, उत्पादन, वाणिज्य, वितरण व परिवार आदि सभी क्षेत्रों में किया जा रहा है। बाजार भाव उठने-गिरने का संकेत भी इन्टरनेट द्वारा ही प्राप्त किया जा सकता है।

बैंकों के लिए इन्टरनेट का अभूतपूर्व योगदान है। बड़े-बड़े खातों के रख-रखाव और पैसों के लेन-देन की माथापच्ची से जहाँ एक ओर बैंक कर्मचारियों को फुर्सत मिलती है वहीं सभी संस्थानों, प्रतिष्ठानों में बिल भी कम्प्यूटर में इन्टरनेट होने से भुगतान किये जा सकते हैं। आजकल बैंकों में रिजर्व बैंक तथा व्यापारिक बैंकों में इन्टरनेट का प्रयोग अधिकाधिक होने लगा है। जीवन बीमा निगम के जटिल कार्यों से निपटने के लिए इसी का प्रयोग किया जाता है।

हमारी अन्तरिक्ष यात्राएँ इन्टरनेट पर आधारित हैं। इसके अभाव में न तो रॉकेट व उपग्रह अन्तरिक्ष में प्रक्षेपित किये जा सकते हैं और न ही उनका निरीक्षण किया जा सकता है। अन्तरिक्षीय यात्राओं का निर्देशन इन्टरनेट के माध्यम से ही सम्भव है साथ ही अन्तरिक्ष से प्रेषित चित्रों का विश्लेषण भी इन्टरनेट से ही किया जा सकता है। अब आई.आर.सी.टी.सी. की वेबसाइट के माध्यम से घर बैठे ही किसी भी गन्तव्य के लिए रेलवे टिकट इन्टरनेट से बुक किये जा सकते हैं। हवाई टिकट, बस यात्रा की टिकट अब घर बैठे इन्टरनेट से प्राप्त की जा सकती है। गैस सिलेण्डर की बुकिंग व बिल अदायगी सब कुछ इन्टरनेट से सम्भव है। इन्टरनेट की सहायता से हम चलचित्र का आनन्द भी ले सकते हैं।

सभी राष्ट्रों में शिक्षण कार्य में जटिल से जटिल समस्याओं के समाधान में, अपराध निराकरण आदि में इन्टरनेट बहुत सहायक है।

इन्टरनेट से विवाह कराने तथा ज्योतिष आदि में भी बहुत सहायता मिलती है। हम घर बैठे इन्टरनेट के माध्यम से आमने-सामने बातचीत कर सकते हैं।

हर सिक्के के दो पहलू होते हैं। एक ओर यदि इन्टरनेट के अनेक लाभ हैं तो वहीं अनेक हानियाँ भी हैं। इन्टरनेट हिंसा को जन्म देता है। इन्टरनेट के माध्यम से अश्लीलता व धोखेबाजी के अनेक मामले सामने आये हैं। भोली-भाली लड़कियों को चैटिंग द्वारा फँसाकर, उनकी ब्ल्यू फिल्म बनाना इन्टरनेट के खतरनाक खेल हैं। इन्टरनेट द्वारा बहुत से लोग गलत कार्यों को अंजाम देते हैं। आजकल इन्टरनेट अपराधी प्रवृत्ति को तेज रफ्तार से जन्म दे रहा है। इसका जीता जागता उदाहरण साइबर क्राइम है। लोग इन्टरनेट के द्वारा दूसरे लोगों के क्रेडिट कार्ड, डेबिट कार्ड आदि का पासवर्ड चुराकर उनके खाते में से पैसे उड़ा देते हैं। इन्टरनेट को बहुत-सी “सोशल नेटवर्किंग साइट” से जोड़कर लोगों

को गलत काम में फँसा दिया जाता है। इस प्रकार हम देखते हैं कि इन्टरनेट जितना लाभकारी है उसके दुरुपयोग से होने वाले परिणाम उससे अधिक घातक हैं। अतः इसका उपयोग करते समय बहुत सावधानी रखने की आवश्यकता है।

(iv) **“परिश्रम ही सफलता का सोपान है”**

सफल जीवन की सार्थकता का यही मूल मंत्र है। “उद्यमेन हि सिध्यन्ति कार्याणि न मनोरथैः” अर्थात् परिश्रम से ही सारे कार्य सिद्ध होते हैं और तभी मीठे फल की प्राप्ति होती है। इसके अभाव में तो शक्तिशाली वनराज सिंह भी अपने शिकार को प्राप्त नहीं कर पाता। नन्हीं-सी चींटी अपनी नन्हीं-नन्हीं टांगों से कोसों चलती हैं और चलती ही रहती हैं कभी थकती नहीं।

अपने लक्ष्य की प्राप्ति हेतु हमें अधिक परिश्रम करना होता है। इस प्रयास में हम कई बार निराश भी होते हैं जिस प्रकार से सीढ़ी पर चढ़ते समय कई बार गिर जाते हैं तो चढ़ना नहीं छोड़ देते और अन्त में पूरी सीढ़ियाँ चढ़ जाते हैं। अतः हमें अपने प्रयास में कमी नहीं छोड़नी चाहिए। इसी विचार पर आधारित एक कहानी प्रस्तुत कर रहा हूँ :

प्रकाश बचपन से ही मेधावी था। उसके माता-पिता बहुत धनी नहीं थे, परन्तु वह अपने बालक को बहुत अच्छी शिक्षा दिलवाना चाहते थे। धनाभाव के कारण उन्होंने प्रकाश को एक सामान्य विद्यालय में प्रवेश दिलवा दिया। वह प्रतिदिन बड़ी खुशी से विद्यालय जाता था और खूब लगन से मेहनत करके अध्ययन करता था। उसकी रुचि अध्ययन में सामान्य बालकों से कुछ अधिक ही थी। उसके माता-पिता बड़े भाग्यशाली थे जिन्हें ऐसा सुशील, सदाचारी व संस्कारी पुत्र प्रभु ने दिया था। वह निरन्तर कक्षाएँ उत्तीर्ण करता गया और हर कक्षा में सदैव अव्वल रहता था। उसकी लगन, कठिन परिश्रम एवं आत्मविश्वास को देखकर गुरुओं की प्रसन्नता का ठिकाना नहीं था।

प्रकाश के कारण विद्यालय में उसके माता-पिता का खूब सम्मान किया जाता था। धीरे-धीरे प्रकाश ने कक्षा 12 की परीक्षा पूरे राज्य में प्रथम स्थान प्राप्त कर उत्तीर्ण की। विद्यालय में इस बात पर बड़ी प्रसन्नता व्यक्त की गई साथ ही उसके माता-पिता भी बहुत प्रसन्न थे। अब समय आ गया था जब प्रकाश को अपने जीवन का लक्ष्य निर्धारित करना था।

उसने अपने माता-पिता के समक्ष अपने विचार रखते हुए कहा कि वह प्रशासनिक परीक्षा की तैयारी करना चाहता है। उसके माता-पिता उसके चयन से खुश हुए क्योंकि उन्हें अपने पुत्र की मेहनत पर पूरा भरोसा था।

अब तो प्रकाश ने पहले आठ, फिर दस, फिर बारह और बढ़ाते-बढ़ाते अठारह घंटे अध्ययन करना प्रारम्भ कर दिया। इस समय उसे एक ही धुन सवार थी कि उसे आई.ए.एस. की परीक्षा उत्तीर्ण करनी है। प्रकाश ने पूरी मेहनत से परीक्षा दी, परन्तु किसी भी अच्छे कार्य में अगर अड़चन न आये तो उसका महत्व कम हो जाता है। फलस्वरूप, प्रकाश पहली दो परीक्षाओं में सफल नहीं हो पाया। उसे बहुत दुःख हुआ, लेकिन उसने हिम्मत नहीं हारी। उसने और भी गम्भीरता से मेहनत की। उसकी मेहनत रंग लाई और तीसरे वर्ष में

उसका चयन आई. ए. एस. ऑफिसर के लिए हो गया। अखबारों में उसका फोटो आया। उसके माता-पिता की खुशी का ठिकाना नहीं था। उन्हें सच में अपने पुत्र पर गर्व हो रहा था। मीडिया वालों ने उनके पुत्र के साथ उनके कई फोटो लिये और उनकी तथा उनके पुत्र की भूरि-भूरि प्रशंसा की।

इस बात में तनिक भी संदेह नहीं कि परिश्रम ही सफलता का सोपान है।

(v)

चित्र प्रस्ताव

प्रस्तुत चित्र में सेना के चार अफसर दिखाई दे रहे हैं। वे सेना की वर्दी पहने हुए हैं। उनके पीछे दो नवयुवक खड़े हुए हैं जो सेना के जवान अर्थात् अफसरों के सहायक प्रतीत होते हैं। बीच में खड़े दो अफसरों की बाँहों में एक बच्चा है जो तौलिये में लिपटा हुआ है। वे सब बड़े प्यार से उस बच्चे को देख रहे हैं।

एक बार की बात है कि भारतीय सीमा रेखा पर अचानक आतंकवादियों ने हमला कर दिया। संयोग की बात तो यह थी कि हमारे जवान सावधान थे। अतः उनके आक्रमण का मुँह-तोड़ जबाब दिया गया। दोनों तरफ से गोलियों की धौं-धौं सुनाई दे रही थी। बड़ी भयंकर स्थिति उत्पन्न हो गई थी। हमारी सेना के अफसरों ने जवानों ने बड़ी कुशलता से उन पर काबू पाने का प्रयास किया। जब वे धीरे-धीरे भागने की कोशिश कर रहे थे तभी हमारे जवानों ने उनके कई जवान ढेर कर दिये। उसी समय मेज़ूर पौरुष को खबर मिली कि रामवीर नामक जवान की पत्नी गर्भावस्था में प्रसव पीड़ा से कराह रही है। उन्होंने तुरन्त उसे पास ही सैनिक अस्पताल में भर्ती करने का आदेश दिया। लगभग दो घंटे की मशक्कत के पश्चात् उस नारी ने एक कन्या को जन्म दिया। तब तक सारा युद्ध समाप्त हो चुका था और सभी अफसर और जवान सीमा से वापस आ चुके थे। लौटने के पश्चात् उन्हें जब यह शुभ समाचार मिला तो वे बहुत खुश हुए। बच्ची को तौलिये में लपेटकर उनके पास लाया गया। उन अफसरों ने बच्ची को अपनी बाँहों में उठाया और ईश्वर को धन्यवाद दिया कि हे प्रभु! तूने ऐसे कठिन समय में जब आतंकवादियों के हमले के समय अफरा-तफरी मच गई थी तब दो जानों को जिन्दगी दी।

अपनी इस सफलता पर उन्हें हर्ष हुआ और उन्होंने उस बच्ची का नाम बीरा रखा और उसकी माँ के पास वापस भेज दिया।

Answer 2.

(i) सेवा में,

श्रीमान् मुख्य नगर अधिकारी,
नगर निगम दिल्ली।

विषय—सड़कें टूटी होने के कारण जल-भराव एवं स्पीड-ब्रेकर से होने वाली यातायात असुविधा।

माननीय महोदय,

इस पत्र के माध्यम से मैं नगर निगम अधिकारियों का ध्यान अपने क्षेत्र चाँदनी चौक की ओर आकर्षित करना चाहता हूँ। जहाँ टूटी-फूटी सड़कों के कारण पानी भर जाता है और कीचड़ हो जाती है। फलस्वरूप यहाँ गन्दगी का साम्राज्य है। घरों में रहना व वहाँ से निकलना दूभर हो गया है। दुर्गन्ध से सौँस बन्द होने लगती है।

वहीं एक नई समस्या स्पीड-ब्रेकर की है। एक तो सँकरा रास्ता, दूसरे कीचड़ और तीसरे खतरनाक स्पीड-ब्रेकर। ऐसा प्रतीत होता है मानो वहाँ से निकलना एक बहुत बड़ा दण्ड है। वहाँ रहने वालों का जीवन नर्क बन गया है।

महोदय, आपसे सविनय निवेदन है कि हमारे क्षेत्र की समस्या का समाधान करने हेतु सम्बन्धित अधिकारी को निर्देश प्रदान करें ताकि हमें इस परेशानी से छुटकारा मिल सके। आशा है कि आप शीघ्रातिशीघ्र हमें इस समस्या से मुक्त करायेंगे।

सधन्यवाद।

प्रार्थी

करन वर्मा

74, किनारी बाजार कॉलोनी,

रमन वाटिका,

दिल्ली।

दिनांक : 14-2-20XX

(ii) 34, श्याम नगर,

राधा विहार,

मेरठ।

दिनांक : 15.2.20XX

पूजनीय माताजी,

सादर चरण स्पर्श।

कुशलपूर्वक रहकर आपकी सपरिवार कुशलता की कामना करता हूँ। माँ! मैं आपको पत्र यह बताने के लिए लिख रहा हूँ कि मेरे विद्यालय में एक बहुत बड़ी प्रतियोगिता का आयोजन किया गया था, जिसके निर्णायक के रूप में लगभग दस लोगों को बाहर से आमन्त्रित किया गया था। मेरे प्रधानाचार्य जी ने उनके आदर-सत्कार से लेकर उनके ठहरने, खाने-पीने आदि की व्यवस्था का उत्तरदायित्व मुझे ही सौंपा। पहले तो मुझे थोड़ी घबराहट हो रही थी, परन्तु फिर मैंने हिम्मत से काम करने का निश्चय किया। सबसे पहले तो मैंने अपने विद्यालय के पास के होटल में उनके रहने, खाने आदि की व्यवस्था की और एक मित्र के पिता की सहायता से एक कार का प्रबन्ध करवा दिया जिससे अतिथिगणों को आने-जाने में किसी प्रकार की असुविधा नहीं हो। यह प्रतियोगिता पाँच दिन चली। पाँचवें दिन जब प्रतियोगिता का समापन समारोह हुआ तब सभी अतिथियों ने प्रधानाचार्य जी से मेरी बहुत प्रशंसा की। माँ यह सुनकर मुझे इस बात की प्रसन्नता हुई कि मैं प्रभु की कृपा से इस उत्तरदायित्व का बखूबी पालन कर सका। शेष सब कुशल है, पिताजी को मेरा चरण स्पर्श कहिए एवं छोटी बहन को ढेर सारा प्यार।

पत्रोत्तर की प्रतीक्षा में,

आपका आज्ञाकारी पुत्र,

राहुल

Answer 3.

(i) माँ ने नामू को यह आदेश दिया कि वह पलाश के पेड़ से थोड़ी-सी छाल कुल्हाड़ी से काटकर ले आये। जब वह माँ की आज्ञानुसार पेड़ से छाल काट रहा था तब उसे कुल्हाड़ी की चोट से पेड़ को एक प्रकार की पीड़ा होने की अनुभूति हुई।

(ii) घर आकर नामू ने कुल्हाड़ी की चोट से पेड़ की पीड़ा का अहसास करने के लिए कुल्हाड़ी से अपना पैर रगड़ना शुरू किया क्योंकि वह यह जानना चाहता था कि यदि उसे कुल्हाड़ी की रगड़ से दर्द होता है तो निश्चित रूप से पेड़ को भी कुल्हाड़ी के प्रहार से पीड़ा होती होगी।

(iii) नामू को वस्त्रों पर लगे खून को देखकर माँ चिन्तित हो गई। माँ ने वस्त्रों पर रक्त लगने का जब कारण पूछा तब नामू ने बताया कि कुल्हाड़ी से पलाश की छाल उतारते समय उसे ऐसा महसूस हो रहा था कि जैसे पेड़ कराह रहा है। इस सत्य को जानने के लिए ही नामू ने अपने पाँव पर कुल्हाड़ी रगड़ी, जिससे उसे दर्द भी हुआ और खून भी निकला। उसने माँ को बताया—“मैं यह जानना चाहता था कि क्या सभी को एक-सी पीड़ा होती है?”

(iv) संत स्वभाव से दयालु होते हैं। वे दूसरों के दुःख में भी अपने समान दुःख की अनुभूति करते हैं। वे जड़ व चेतन दोनों में ही सजीव अनुभूतियों का अनुभव करते हैं। वे परोपकारी एवं सबसे प्रेम करने वाले होते हैं। आगे चलकर यह ‘नामू’ नामदेव के नाम से महाराष्ट्र का प्रसिद्ध संत हुआ।

(v) यह गद्यांश “अहिंसा परमोधर्मः” की शिक्षा प्रदान करता है। संसार में जड़ हो या चेतन सभी के प्रति सहृदयता का भाव रखना चाहिए। हमारे पर्यावरण की सुरक्षा हेतु वृक्षों का महत्वपूर्ण योगदान है क्योंकि इनकी सुरक्षा में ही हमारा जीवन सुरक्षित है। इसलिए हम सबको इनके संरक्षण एवं संवर्द्धन में सहयोग देना चाहिए।

Answer 4.

(i) नीति — नैतिक साहित्य — साहित्यिक
(ii) मार्ग — पथ, रास्ता। माता — जननी, अम्बा।
(iii) निर्दोष — दोषी शान्त — अशान्त।
पतन — उत्थान अन्त — आदि।

(iv) आँख पर पर्दा पड़ना—(अज्ञानी बनना) मेरे मित्र की आँखों पर पर्दा पड़ गया है। परीक्षा के दिनों में देर रात तक दूरदर्शन पर कार्यक्रम देखता रहता है।

घुटने टेकना—(हार मानना) पुलिस के सामने चोर ने घुटने टेक दिये और अपना अपराध स्वीकार कर लिया।

(v) ईश्वर — ईश्वरत्व, उत्तम — उत्तमता।

(vi) (a) असफल हो जाने पर, उसे बहुत दुःख हुआ।

(b) परिश्रमी व्यक्ति विपत्तियों से नहीं घबराते हैं।

(c) आजीवन मैं इसी आचरण का पालन करता आया हूँ।

Section B is not given due to change in the present syllabus.

QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- ज्ञान प्राप्त करने के बहुत से साधन हैं। यात्रा पर जाना भी किसी पाठशाला में जाकर शिक्षा प्राप्त करने से कम नहीं है। ऐसी ही किसी यात्रा का वर्णन कीजिए। बताइए कि उस यात्रा से आपने क्या-क्या सीखा ?
- कल्पना कीजिए कि आपको किसी प्रसिद्ध व्यक्ति का साक्षात्कार (Interview) लेने की जिम्मेदारी सौंपी गई है। बताइए कि वे प्रसिद्ध व्यक्ति कौन हैं और आप उनसे कौन-कौन से तीन प्रश्न पूछेंगे व क्यों ?
- “ऊँचे लक्ष्य को प्राप्त करने के लिए माता-पिता तथा अध्यापकों द्वारा बच्चों पर डाला जाने वाला दबाव अनुचित है।”—विषय के पक्ष या विपक्ष में अपने विचार दीजिए।
- एक मौलिक कहानी लिखिए जिसका आधार निम्नलिखित उक्ति हो—
‘जान बची तो लाखों पाये’
- नीचे दिये गये चित्र को ध्यान से देखिए और चित्र को आधार बनाकर वर्णन कीजिए अथवा कहानी लिखिए जिसका सीधा व स्पष्ट सम्बन्ध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below :—

निम्नलिखित में से किसी एक विषय पर हिन्दी में लगभग 120 शब्दों में पत्र लिखिए :—

- छात्रावास में रहने वाली अपनी छोटी बहन को फैशन की ओर अधिक रुझान न रख, ध्यानपूर्वक पढ़ाई करने की सीख देते हुए पत्र लिखिए।
- आपके नगर में एक ‘विज्ञान-कार्यशाला’ का आयोजन किया जा रहा है। इस कार्यशाला के संयोजक को पत्र लिखकर बताइए कि आप भी इसमें सम्मिलित होना चाहते हैं।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible:—

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए। उत्तर यथासम्भव आपके अपने शब्दों में होने चाहिए—

एक चोर किसी मन्दिर का घण्टा चुराकर ले गया था। वन में जाते हुए उसका सामना बाघ से हो गया और चोर बाघ के द्वारा मारा गया। उसी वन में वह घण्टा बन्दरों के हाथ में पड़ गया। वन बहुत घना था। बन्दर झाड़ियों के अन्दर रहते थे। जब उनकी मौज होती, वे घण्टा बजाते।

घण्टे की आवाज सुनकर समीप के नगर में यह अफवाह फैल गयी कि जंगल में भूत रहता है और उसका नाम घण्टाकरण है। उसके कान घण्टे के समान हैं, जब वह हिलता है, तो कानों से घण्टे की आवाज आती है। इस अफवाह से लोग ऐसे भयभीत हुए कि जंगल की ओर भूलकर भी कोई नहीं जाता था। सब जंगल से दूर-दूर ही रहते थे। जंगल से लकड़हारे लकड़ियाँ न लाते थे, चरवाहे जंगल में पशुओं को चराने न ले जाते थे। किसी में इतना हौसला न था कि जंगल में जाने का प्रयत्न कर पाता।

इस प्रकार सारा का सारा जंगल किसी भी काम में न आकर कल्पित घण्टाकरण भूत की राजधानी बन गया। अब तो राजा को भी बड़ी चिन्ता हुई। उसने सयानों और जादूगरों को इकट्ठा किया और कहा कि भाई इस भूत को जंगल से निकालो, वरना सारा जंगल और हजारों रुपये की सालाना आमदनी बेकार हाथ से जा रही है।

सब लोगों ने अपने-अपने उपाय करने प्रारम्भ किए। पण्डितों ने चण्डी का जाप किया, हनुमान चालीसा का पाठ किया। मुल्लाओं ने कुरान का पाठ आरम्भ किया। किसी ने भैरों को याद किया, किसी ने काली माता की मन्त्र की, किसी ने पीर-पैगम्बर को मनाया, किसी ने जादू-टोना किया। इस पर भी घण्टाकरण किसी के काबू में न आया। घण्टे की ध्वनि सदा की भाँति सुनाई देती रही और लोग समझते रहे कि घण्टाकरण घण्टा बजा रहा है।

तभी एक चतुर मनुष्य उधर कहीं से आ निकला। वह भूत-प्रेत, चण्डी-मुण्डी, पीर-पैगम्बर, जादू-टोने आदि कपोल-कल्पित मिथ्या बातों पर विश्वास नहीं करता था। उसने विचार कि वन में

हो न हो कोई विशेष बात होगी। सम्भव है कि वन में डाकू रहते होंगे और उन्होंने वन को अपने रहने के लिए सुरक्षित बनाने को यह पाखण्ड रचा हो या कहीं बन्दरों के हाथ में घण्टा न पड़ गया हो। ऐसा दृढ़ निश्चय कर वह चतुर मनुष्य साधु का वेश धर कर जंगल में घुसा। अन्दर जाकर देखा तो उसने अपने अनुमान को सही पाया। लौटकर उसने नगर निवासियों से कहा, “भाइयो! मैंने भूत को पकड़ने का उपाय विचार लिया है। आप लोग मुझे एक गाड़ी भुने चने दें, तो मैं कल ही भूत को पकड़ लेता हूँ।”

नगर के निवासी और राजा भूत के नाश के लिए सब कुछ करने को तैयार थे, झटपट सब सामान इकट्ठा कर दिया। चतुर मनुष्य ने जंगल में जाकर चने बन्दरों के आगे डाल दिए। इधर सब बन्दर चने खाने में लगे, इधर उसने घण्टा उठा कर नगर की राह ली। अब क्या था, सारे नगर में और राजसभा में उस चतुर मनुष्य को बड़ा आदर मिला, फिर उसने सब भेद खोलकर लोगों के मिथ्या विश्वास को तोड़ा। उन्हें भूत के भ्रम से मुक्ति दिलाई।

इस कहानी के समान अनेक बातों के भ्रम में पड़कर मनुष्य ने भूत-प्रेत, जादू-टोना आदि अनेक प्रकार की कल्पनाएँ कर ली हैं। लोग भय और मिथ्या विश्वास के कारण वास्तविकता का पता नहीं लगाते हैं और झूठे उपाय कर-करके थकते हैं। वास्तव में भूत-प्रेत आदि यह सब ठग-लीला है। जादू-टोने सब लूटने खाने के बहाने हैं। इनसे सदा बचने में ही मानव की भलाई है।

मिथ्या विश्वास से ही मनुष्य तरह-तरह के कष्टों में पड़ जाता है। अतः यथासम्भव मिथ्या विश्वास दूर करने का प्रयत्न करना चाहिए।

- (i) नगर में क्या अफवाह फैल गई थी और इस अफवाह का क्या कारण था ? [2]
- (ii) जंगल किसकी राजधानी बन गया था ? इससे नगर निवासियों पर क्या प्रभाव पड़ा ? [2]
- (iii) राजा की चिन्ता का क्या कारण था ? भूत को जंगल से निकालने के क्या-क्या उपाय किए गए ? [2]

(iv) चतुर मनुष्य का क्या अनुमान था ? उसने नगर निवासियों को भूत से किस प्रकार मुक्ति दिलाई ? [2]

(v) प्रस्तुत गद्यांश से आपको क्या शिक्षा मिली ? [2]

Question 4.

Answer the following questions according to the instructions given:-

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए:-

- (i) निम्नलिखित शब्दों से विशेषण बनाइए:-
अनुभव, पूजा। [1]
- (ii) निम्नलिखित शब्दों में से किसी एक शब्द के दो पर्यायवाची शब्द लिखिए:-
पुत्री, घमंड। [1]
- (iii) निम्नलिखित शब्दों में से किन्हीं दो शब्दों के विपरीतार्थक शब्द लिखिए:-
अपमान, अमावस्या, उत्थान, निन्दा। [1]
- (iv) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए:-
मुँह में पानी भर आना, टाँग अड़ाना। [1]
- (v) भाववाचक संज्ञा बनाइए:-
सेवक, बच्चा। [1]
- (vi) कोष्ठक में दिए गए निर्देशानुसार वाक्यों में परिवर्तन कीजिए:-
(a) वह दुश्मन की सेना पर टूट पड़ा। [1]
(‘टूट पड़ा’ के स्थान पर ‘हमला किया’ का प्रयोग कीजिए)
(b) विद्यार्थी पुस्तक पढ़ रहा है। [1]
(बहुवचन में बदलिए)
(c) अन्ना हजारे ने सरकार का लोकपाल बिल मानने से इन्कार कर दिया। [1]
(रेखांकित शब्द का विपरीतार्थक शब्द लिखिए। ध्यान रहे वाक्य का अर्थ न बदले)

ANSWERS

SECTION 'A'

Answer 1.

- (i) “यात्रा—ज्ञानप्राप्ति का एक साधन”

ईश्वर की सर्वोत्तम रचना के रूप में मनुष्य विवेकशील मस्तिष्क प्रधान प्राणी है। आदिकाल से ही वह ज्ञानार्जन हेतु सतत् प्रयत्नशील रहा है। उसकी बुद्धि सदैव नित नवीन खोजने में तत्पर रही है, अतीत से लेकर आज तक यह उसका सहज स्वभाव रहा है। यही कारण है कि पेड़ों पर रात काटने वाला, कच्चा माँस खाने वाला, पत्तों से शरीर ढकने वाला मानव आज ऊँची-ऊँची अट्टालिकाओं में सुखद एवं विलासमय जीवन जी रहा है।

उसने यह कैसे सीखा ? अपनी बुद्धि व विवेक से। आधुनिक काल विकास के चरम पर तो पहुँच गया है परन्तु आज विद्यार्थी मात्र विद्यालय की चहारदीवारी में सम्पूर्ण ज्ञान नहीं प्राप्त कर सकता

क्योंकि उसे अपने परिवेश से सीमित ज्ञान ही प्राप्त होता है इसलिए विद्यालय ज्ञान प्राप्ति के पर्याप्त साधन नहीं हैं। विद्यार्थियों की इस अभिलाषा की पूर्ति विभिन्न स्थानों की यात्रा से होती है। इन यात्राओं से एक लाभ यह भी होता है कि जिस वस्तु या स्थान को हम प्रत्यक्ष देखकर जान सकते हैं उसकी प्रतीति हमें पुस्तकीय वर्णन से उतनी अच्छी तरह नहीं हो सकती। इस उद्देश्य की पूर्ति हेतु विद्यालयों में भी शैक्षणिक भ्रमण आयोजित किये जाते हैं।

विद्यार्थियों के ज्ञानार्जन हेतु ऐतिहासिक, भौगोलिक या धार्मिक अनेक शैक्षणिक भ्रमण विद्यालय द्वारा तो आयोजित किये ही जाते हैं, परन्तु ऐसी पारिवारिक यात्राएँ भी बालकों के ज्ञान में बहुत वृद्धि करती हैं।

मुझे भी कुछ समय पहले की गई एक यात्रा का स्मरण हो आया। मेरी गर्मियों की छुट्टियाँ हो गई थीं। पिताजी ने एक सप्ताह का दिल्ली घूमने का कार्यक्रम तय किया। गर्मी तो बहुत थी, परन्तु

घूमने का आनन्द भी कम नहीं था। 15 मई से इधर अवकाश प्रारम्भ हुआ और हमने सामान बाँध लिया। 16 मई प्रातः 5 बजे से मैं व मेरी बहन, मम्मी-पापा के साथ दिल्ली के लिए निकल पड़े। लगभग छः घंटे के बाद हम दिल्ली पहुँचे और एक फाइव स्टार होटल में प्रवेश किया। छः घंटे की यात्रा में थके थे, अतः ए. सी. कमरे में पलंग पर लेटते ही नींद आ गई। शाम को थोड़ा चाय नाश्ता करने के बाद हम सब आस-पास घूमने चले गये। दिल्ली का चाँदनी चौक बाजार, आगरा के किसी भी बाजार से गुणवत्ता में अधिक ही पाया। वस्तुओं में इतनी अधिकता तथा नयापन कि नज़र उठर कर रह जाती थी।

दूसरे दिन प्रातःकाल हमने कुतुबमीनार देखी जिसकी ऊँचाई देखकर निगाह ही थक जाती थी। उसके बाद त्रिमूर्ति भवन, दिल्ली गेट, दिल्ली का लाल किला, मुगल गार्डन, लोटस टैम्पल आदि के प्रत्यक्ष दर्शन से उनकी छवि हमारे मन मस्तिष्क पर ऐसी अंकित हो गई कि हम उसे भूल नहीं सकते। इन ऐतिहासिक इमारतों को देखते हुए हमारे तीन दिन बीत चुके थे। अब हमारे पास तीन दिन और बचे थे। अगले दिन हमने, संसद तथा दिल्ली का दूरदर्शन केन्द्र देखा। एक दिन दिल्ली का चिड़ियाघर देखा। बाकी समय में जंतर-मंतर आदि देखकर हम लोग अपने नगर की ओर वापस चल पड़े। रास्ते में हम सोच रहे थे कि हमने जो कुछ देखा है वह हमारे हृदय-पटल पर छप गया है। अतः यात्राएँ विद्यार्थियों की ज्ञान वृद्धि का एक सबल और समर्थ साधन है।

(ii)

“मेरी कल्पना”

मेरे विद्यालय में छात्र संघ के चुनाव होने वाले थे। मुझे संपादक के रूप में लोगों का साक्षात्कार (Interview) लेना बहुत अच्छा लगता है। मैंने भी इन चुनावों में अपना नाम दिया है। बैठे-बैठे एक विचार आया मानो मैं चुनाव जीत गया और मुझे वार्षिक पत्रिका विभाग में सम्पादक के लिए चुन लिया गया है। मेरी खुशी का ठिकाना न था।

हमारे विद्यालय में वार्षिक उत्सव होने वाला था, बस उसी के विषय में सोचकर मैं अचानक अपनी कुर्सी पर बैठे-बैठे कल्पना जगत में पहुँच गया। मैंने देखा हमारे विद्यालय में 2011 की महत्वपूर्ण शख्सियत (Personality) धोती-कुर्ता व सिर पर टोपी पहने तमाम भीड़ के बीच चली आ रही है। बहुत सारे लोग उन्हें घेरे हुए हैं। उनके आगमन पर लोग नतमस्तक होकर खड़े हो गये तब उन्होंने अपने हाथ के इशारे से सबको बैठने के लिए कहा। उनका स्वागत किया गया अर्थात् अन्ना हजारे मेरी कल्पना में हमारे विद्यालय में आज के समारोह के मुख्य अतिथि बनकर आये थे। कार्यक्रम की शुरुआत कदमताल से हुई, अन्नाजी ने सलामी ली। तत्पश्चात् कुछ दूसरे कार्यक्रम प्रस्तुत किये गये। तभी हम दो युवा सम्पादकों को हमारे वरिष्ठ अध्यापकों ने कोई तीन प्रश्न व उनके समाधान पूछने के लिए कहा। यह सुनकर मैं तो बहुत उत्साहित हो गया था। अपना रजिस्टर व पैन लेकर अन्नाजी के सामने आकर बैठ गया। मैंने पहले उनके पैर छुए और आशीर्वाद लिया।

अन्नाजी प्रसन्न हुए और बोले, “पूछिए क्या पूछना चाहते हैं?”

मैंने अन्नाजी से प्रथम प्रश्न किया—

“अन्नाजी आज हमारे देश में हर दूसरा व्यक्ति बेईमान है। समाचार पत्र, दूरदर्शन समाचार आदि में जहाँ देखिए वहाँ लूटमार, हत्या, बलात्कार जैसी घटनाओं की अतिशयता क्यों है?”

अन्नाजी—इसका कारण, हमारे देश भारतवर्ष का नैतिक पतन हुआ है। हमारी संस्कृति का ह्रास और पाश्चात्य संस्कृति का भारत में विकास हुआ है। ईश्वर में व आध्यात्मिकता में विश्वास नहीं रह गया है। भूल गये हैं हम सब एक ही परमपिता की सन्तानें होने के कारण भाई-भाई हैं।

मैंने अन्नाजी से दूसरा प्रश्न किया—अन्नाजी, देश में महँगाई आसमान छू रही है इसका क्या कारण है?

अन्नाजी—जब नेता अपने देश में कमाई पूँजी दूसरे देशों की स्विस् बैंकों में रख देंगे तो भरपाई तो अपने देश से ही करेंगे। वस्तुएँ महँगी करके अपने खजाने भरते हैं। अपने देश की वस्तुएँ दूसरे देशों को सस्ते में देते हैं और जिससे अपने देश में वस्तुओं की कमी हो जाती है स्थिति “एक अनार सौ बीमार” वाली होती है। वस्तु का महत्व बढ़ जाता है और पैसे का घट जाता है। दूसरा कारण, भवन निर्माताओं ने भवन निर्माण हेतु खेत खरीद लिए। खाद्य वस्तुएँ कहाँ पैदा होंगी, होंगी भी तो कम अनुपात में फिर भला वस्तु आयेगी कहाँ इसलिए महँगाई अन्तहीन है।

मैंने अन्नाजी से तीसरा प्रश्न पूछने की जैसे ही बात की उन्हें हँसी आ गई और बोले, “अन्तिम प्रश्न आपका भ्रष्टाचार पर हो सकता है।”

मैं—अन्नाजी आप बिल्कुल सही समझे हैं। इस प्रश्न को सुनते ही अन्नाजी को देखकर ऐसा लगा जैसे उनकी दुखती रग को किसी ने छू दिया। वह तपाक् से बोले, भारतवर्ष में भ्रष्टाचार कण-कण में बोया हुआ है। जहाँ के रक्षक “भ्रष्टाचारी हों उस देश में भ्रष्टाचार कैसे समाप्त होगा? आज धन लोलुपता ने नेताओं के चरित्र को पूरी तरह भ्रष्ट कर दिया है। यहाँ इस समस्या का समाधान नजर नहीं आता। कुर्सी पर बैठे बादशाह इस हद तक भ्रष्टाचारी हैं कि नजर बचते ही न जाने कितने अन्नाओं को मौत के घाट उतार बैठे हैं और भविष्य में भी इस कुकृत्य के लिए तत्पर हैं। इसलिए ईश्वर ही जाने कि इस समस्या का समाधान कैसे सम्भव होगा।”

अन्ना जैसे महापुरुष की इन बातों को सुनकर मेरा अन्तस्तल भी द्रवित हो गया क्योंकि अन्नाजी की वाणी में एक दुःखी भारतवासी के हृदय की व्यथा बोल रही थी, लेकिन मेरी सोच यह है कि कोई कार्य कठिन तो हो ही सकता है असम्भव हरगिज नहीं। एक न एक दिन भ्रष्टाचार का अन्त अवश्य होगा। तभी किसी की आवाज पर मैं अपनी कल्पना से बाहर आ गया। कल्पना ही सही, पर ऐसे महापुरुष से वार्तालाप करके मैं धन्य हो गया।

(iii)

“ऊँचे लक्ष्य को पाने के लिए”

पक्ष में :—

“ऊँचे लक्ष्य को प्राप्त करने के लिए माता-पिता तथा अध्यापकों द्वारा बच्चों पर डाला जाने वाला दबाव अनुचित है।” मैं इस विषय के पक्ष में अपने विचार व्यक्त करना चाहूँगा। सच तो यह है कि

प्रत्येक बालक अपनी क्षमता व अपनी प्रतिभा लेकर उत्पन्न होता है। चिकित्सक की क्षमता वाले बालक को इंजीनियर नहीं बनाया जा सकता। जिसमें नेता या अभिनेता बनने की प्रतिभा है उसे कदापि अध्यापक नहीं बनाया जा सकता। आधुनिक युग में बालकों को अपना लक्ष्य निर्धारित करने के अनेक अवसर हैं। कोई बालक शैफ बनने की प्रतिभा रखता है, परन्तु उसके माता-पिता उसे हीन समझते हुए ऐसा बनने से निरुत्साहित करते हैं। अपनी इच्छानुसार व्यवसाय न चुन पाने के कारण बालक कुण्ठा का शिकार बन जाता है। उसमें हीन भावना आ जाती है क्योंकि वह अपनी योग्यतानुसार स्वयं को स्थापित नहीं कर पाता।

माता-पिता व अध्यापकों को बालकों की प्रतिभा का आकलन करना चाहिए उसकी रुचि व रुझान को समझना चाहिए। उसके अनुसार ही उसे प्रोत्साहित करते हुए साधन उपलब्ध कराने चाहिए ताकि वह उस क्षेत्र में पूर्ण कुशलता प्राप्त कर सके।

बच्चे की रुचि व प्रतिभा के विपरीत यदि उसे जबरदस्ती किसी कार्य को करने के लिए दबाव दिया जाता है तो वह उसमें लगातार असफल होता जाता है। कारण यह है कि उसका मन उस कार्य में लगता ही नहीं है। आवश्यक नहीं कि डॉक्टर का बेटा डॉक्टर ही बने। जरूरी नहीं कि इंजीनियर का बेटा इंजीनियर ही बने। उसे उसकी रुचि के अनुसार कार्य करने की स्वतन्त्रता देनी चाहिए।

विपक्ष में :-

‘ऊँचे लक्ष्य की प्राप्ति के लिये अध्यापकों या माता-पिता का दबाव अनुचित है’ इस वाक्य के विपक्ष में मैं कहना चाहूँगा कि विद्यार्थी काल किसी भी बालक के लिये बहुत महत्वपूर्ण होता है यदि उस समय उसे ढील दे दी जाये तो वह उस समय का सही उपयोग नहीं कर पायेगा, सफलता के मार्ग से भटक जायेगा और बीता हुआ समय कभी वापस नहीं आता। यदि इस समय अधिक स्वतन्त्रता दी जायेगी तो संभव है कि वे गलत मार्ग पर चले जायें, अनुशासनहीन हो जायें। अभिभावकों को इस मामले में सख्त होकर उन्हें समझाना और सही मार्ग दिखाना, सही भविष्य की तस्वीर दिखाना ही सही है। माता-पिता व गुरु का यह कर्तव्य है कि वे उस पर ध्यान देते रहें कि कहीं वह दी गई स्वतन्त्रता का दुरुपयोग तो नहीं कर रहा है। माता-पिता व गुरु बालक के सहायक बनकर उसके लक्ष्य की गुणवत्ता को पहचानें ताकि बालक अपनी जिद के कारण कुछ भी न बन जाये।

कभी-कभी बालक अपने लक्ष्य निर्धारण में इतना असफल हो जाता है कि वह निर्णय नहीं कर पाता कि वह क्या करे। उस समय माता-पिता व गुरु उसका मार्गदर्शन करें उसकी प्रतिभा को पहचानें व उसे अपने जीवन के लक्ष्य हेतु अग्रसर करें।

(iv) “जान बची तो लाखों पाये”

“जान बची तो लाखों पाये, लौट के बुद्धू घर को आये।”

उपर्युक्त उक्ति का अर्थ है कि कुछ मूर्खता के कारण प्राणों पर बन आई, परन्तु किसी तरह से बच कर आ गये तो विजय पा गये।

एक बार की बात थी। मेरा विश्वासपात्र मित्र मुझसे बोला दोनों मिलकर एक व्यापार करते हैं। समय की मार के कारण दोनों ही

बेरोजगार थे। विचार अच्छा था इसलिए मैंने भी स्वीकृति दे दी। जैसे ही मेरे दादाजी ने यह बात सुनी, मुझे सावधान करते हुए बोले, “बेटा! ध्यान रखना पैसा बुरी चीज है। एक साथ व्यापार तो कर रहे हो, लेकिन मित्र की नीयत से बच कर रहना।” मैंने दादाजी की बात को महत्व न देते हुए कहा—“दादाजी, मेरा दोस्त शुभम् साधु प्रकृति का युवक है। वह किसी प्रकार का धोखा नहीं करेगा। वह मुझसे बहुत प्यार करता है।” यह सुनकर दादाजी ने कहा—“चलो ठीक है।”

मैंने व शुभम् ने दवाईयों का व्यापार शुरू किया। हम दोनों बिना किसी मिलावट के शुद्ध दवाईयाँ बेचते थे। लोग सबको छोड़ कर हम पर विश्वास कर हमारी ही दुकान से दवाई खरीदते थे। इस कारण हमारी खूब बिक्री होती थी। धीरे-धीरे खूब पैसे आने लगे। इसी बीच शुभम् का एक चचेरा भाई दुकान में आकर बैठने लगा। कभी-कभी काम में दखल देना भी उसने शुरू कर दिया। मेरे विरोध करने पर शुभम् ने उसका पक्ष लिया। मुझे बहुत बुरा लगा परन्तु मैं चुप ही रहा।

एक दिन शुभम् मुझे पिकनिक के बहाने किसी सुनसान स्थान पर ले गया। वहाँ मैंने देखा कि उसका वह चचेरा भाई भी अपने दो मित्रों के साथ वहाँ पहुँच गया। यह सब देखकर मैं सोचने लगा—अवश्य शुभम् के मन में कोई षड्यन्त्र चल रहा है क्योंकि अब दुकान की आमदनी बढ़ गई थी। उसे लालच आ गया था इसलिए वह कभी-कभी असली के साथ-साथ नकली दवाईयाँ भी बेचने लगा था। मैं इस बात का विरोध करता था इसलिए शुभम् की आँखों में एक कटि जैसा चुभने लगा था।

अतः पिकनिक के स्थान पर शुभम् के दोस्तों की भीड़ को देखकर मैं थोड़ा सावधान तो हो ही गया, साथ ही मुझे अपने दादाजी के द्वारा कहे शब्द याद आने लगे। मैं बहुत सरल हो गया और धैर्य से काम लेने लगा। मैं उन सबसे बहुत प्यार-भरा व्यवहार कर रहा था ताकि उन्हें मेरे हृदय में क्या चल रहा है, इसका अहसास नहीं हो। पहले थोड़ा-सा नाश्ता पानी हुआ। मैंने जानबूझकर अपनी चीजें ही खाईं। उसके बाद थोड़ा खेल व गाना-बजाना होता रहा। तत्पश्चात् दोपहर के खाने का समय हुआ। इस समय वे सब मुझे कुछ भी नुकसान पहुँचा सकते थे। मुझे एक उपाय सूझा। वह स्थान सुनसान होने के कारण जंगल जैसा था। अतः मैं लघुशंका के बहाने वहाँ से निकल गया और बहुत दूर पहुँच गया। चलते-चलते मैं कुछ देर बाद एक ट्रक में चढ़ गया। मालिक को पता न था। उसमें रखे सामान में छिप गया। लगभग दो घंटे बाद मुझे पता चला कि यह ट्रक मेरे ही शहर में जा रहा था। एक जगह ट्रक रुका। मैं चुपचाप उतर गया और मेरे नगर को जाने वाली बस में बैठकर अपने घर पहुँचकर सारी घटना बताई। मैं बहुत घबराया हुआ था, परन्तु दादाजी तुरन्त बोल उठे—“जान बची तो लाखों पाये, लौट के बुद्धू घर को आये।”

चित्र प्रस्ताव

प्रस्तुत चित्र में एक स्त्री एक पतीली में से कप में चाय छान रही है। दो मोमबत्तियाँ जल रही हैं। उसके दायीं ओर एक लोहे का पलंग पड़ा है। उस पर एक व्यक्ति (जो उसका पति हो सकता है) लेटा

हुआ है, शायद वह बीमार है। वह कमबल ओढ़े हुए है। स्थान कुल खुला-सा प्रतीत होता है। साथ ही स्त्री व पुरुष दोनों ही गरीबी में अपने दिन काटते प्रतीत हो रहे हैं। अतः यह चित्र भारत देश की निर्धनता की ओर संकेत कर रहा है।

वर्तमान काल में भारत अनेक समस्याओं से ग्रसित है। गरीबी उनमें से एक है। रोटी, कपड़ा व मकान मनुष्य की मूलभूत आवश्यकताएँ हैं। इनके अभाव में मानव जीवन की कल्पना ही असम्भव है।

निर्धनता समाज का एक ऐसा कोढ़ है जिसमें मनुष्य पल-पल हलाहल पीकर जीवन के भार को येन-केन प्रकारेण ढोता रहता है। निर्धनता अभाव की एक ऐसी दशा है जिसमें साधनों की कमी के कारण व्यक्ति की आवश्यकताओं की पूर्ति नहीं हो पाती। वह समाज के अनुसार अपने जीवन स्तर को बनाये रखने में सफल नहीं हो पाता। इसी के कारण उसकी शारीरिक व मानसिक क्षमता दिनों दिन घटती जाती है। चिन्ताग्रस्त होते-होते उसे अनेक बीमारियाँ घेर लेती हैं। यह भी कोढ़ में खाज का काम करती है। पेट भरने को पैसा नहीं है। दवाई व डॉक्टर के लिए गरीब पैसा कहाँ से लायेगा ? इसी कारण उसका मन अशांत व चेहरा उदास रहता है। वातावरण में चुपपी रहती है। इस चित्र में भी दिखाई दे रहा है।

गरीबी के अनेक कारण होते हैं। अशिक्षा, शारीरिक अशक्तता, आलस्य, मानसिक क्षमता का अभाव, बीमारी, बुढ़ापा अथवा परिवार में किसी कमाने वाले का अभाव। हमारे देश में युवक या तो अशिक्षित हैं या फिर उचित शिक्षा के अभाव में वे रोजगार पाने योग्य नहीं हैं। कहीं-कहीं कार्यक्षमता का अभाव भी देखा जाता है। किसी-किसी परिवार में परिवार का मुखिया जिम्मेदार नहीं होता। जिसके कारण उसकी पत्नी पर सारा बोझ आ जाता है और घर में गरीबी का वास हो जाता है।

प्राचीनकाल में हमारा देश सम्पन्न था क्योंकि उस समय लोग छोटे से छोटा काम करने में लज्जा का अनुभव नहीं करते थे। कुटीर उद्योगों से गाँव में लोगों का जीवन बड़ा सन्तुष्ट था। आधुनिक युग में मशीनीकरण होने के कारण कुटीर उद्योगों का पतन हुआ। लोग बेरोजगार व आलसी हो गये। सब इंजीनियर, डॉक्टर बनना चाहते हैं। सब अमीर बनकर विलासमय जीवन व्यतीत करना चाहते हैं। मजदूर व किसान भी आज मजबूरी में काम कर रहे हैं।

गरीबी का सबसे बड़ा कारण आज निरन्तर बढ़ती महँगाई है। व्यक्ति कितना ही क्यों न कमाये परन्तु पूरी नहीं पड़ती। आसमान को छूते वस्तुओं के मूल्यों ने सामान्य लोगों की कमर ही तोड़ दी है।

देश की गरीबी के जिम्मेदार हमारे राजनैतिक नेता व उच्च अमीर वर्ग हैं। नेताओं का अपना धन स्विस बैंकों में रखा है। यदि वे अपने देश को खुशहाल बनाना चाहें तो अपना धन अपने देश में ले आयें साथ ही भवन निर्माण करने वाला वर्ग अपनी हठधर्मिता को छोड़े तथा खेतों को खेत ही रहने दे। ऊँचे-ऊँचे फ्लैट्स पेट नहीं भरेंगे। अगर खेतों में भवन निर्माण होगा तो अनाज कहाँ पैदा होगा, सब्जियाँ कहाँ से आयेंगी ? सरसों का तेल व कपास से रुई कहाँ से आयेगी ?

जब तक इन समस्याओं पर ध्यान नहीं दिया जायेगा। गरीबी का अन्त असम्भव ही है।

Answer 2.

(i) 67, कमला नगर,
आगरा।

दिनांक : 21-03-20XX

प्रिय अनुजा-शुभि

शुभाशीर्वाद।

सपरिवार कुशलपूर्वक रहकर तुम्हारी कुशलता की कामना सदैव ईश्वर से करती हूँ। तुम्हें छात्रावास में रहते हुए लगभग दो महीने हो गये हैं। कुछ दिनों में तुम्हारी त्रैमासिक परीक्षाएँ होने वाली हैं। वार्षिक परीक्षा में अच्छा अंक प्रतिशत पाने के लिए आवश्यक है कि इस परीक्षा की खूब मेहनत से तैयारी की जानी चाहिए।

देखो शुभि! आज चारों ओर फैशन का माहौल है। इसका कारण हमारी भारतीय सभ्यता पर पाश्चात्य सभ्यता का हावी होना है। दूरदर्शन की इसमें महत्वपूर्ण भागीदारी है। इस पत्र के माध्यम से मैं तुम्हें समझाना चाहती हूँ कि तुम फैशन की चकाचौंध से दूर रहकर केवल अपने अध्ययन पर एकाग्रचित्त होकर ध्यान दो ताकि जिस उद्देश्य से माता-पिता ने तुम्हें वहाँ भेजा है वह पूरा हो सके, साथ ही तुम अपना भविष्य स्वर्णिम बना सको। फैशन के लिए तो पूरी जिन्दगी पड़ी है, परन्तु जीवन का यह महत्वपूर्ण समय यदि बर्बाद हो गया तो कुछ नहीं बचेगा।

अतः मेरी सलाह है कि खूब मेहनत से पढ़ाई करो और उत्तम अंक प्राप्त करो। माता-पिता का तुम्हें बहुत प्यार।

तुम्हारी बड़ी बहन,

कृति

(ii) सेवा में,

संयोजक महोदय,

विज्ञान कार्यशाला,

आगरा।

विषय: विज्ञान कार्यशाला में सम्मिलित होने हेतु।

माननीय महोदय,

इस पत्र के माध्यम से मैं आपको यह अवगत कराना चाहता हूँ कि आप हमारे नगर में जो विज्ञानशाला आयोजित कर रहे हैं, मैं भी उसका हिस्सा बनना चाहता हूँ। मैं विज्ञान का विद्यार्थी हूँ। इस कारण विद्यालय के अतिरिक्त इस कार्यशाला का नियमित सदस्य बनकर मैं अपने अध्ययन में इसका लाभ प्राप्त करना चाहता हूँ।

महोदय, इस सन्दर्भ में मैं आपको यह भी बताना चाहता हूँ कि कार्यशाला में जो धन व्यय होगा उसका कुछ अंश मेरे द्वारा देय होगा। इसके अतिरिक्त भी किसी अन्य सहायता की आवश्यकता होगी तो उसके लिए मैं तैयार हूँ।

अतः मुझे आशा ही नहीं अपितु पूर्ण विश्वास है कि आप मुझे इस कार्य में अवश्य सम्मिलित कर कृतार्थ करेंगे।

भवदीय,

हर्ष बंसल

44, विजय नगर,

बेलनगंज,

आगरा।

दिनांक : 21-8-20XX

Answer 3.

- (i) नगर में यह अफवाह फैल गई थी कि वन में कोई घण्टाकरण नाम का भूत रहता है। उसके कान घण्टे के समान हैं। उसके हिलने से कानों से घण्टों की आवाज आती है।

उस अफवाह का कारण यह था कि कोई चोर मन्दिर का घण्टा चुराकर जंगल से जा रहा था तभी एक बाघ ने उसे मार डाला। उसके द्वारा छोड़ा हुआ घण्टा बन्दरों को मिल गया। वे उसे झाड़ियों में ले गये और जब प्रसन्न होते तब उसे बजा दिया करते थे।

- (ii) वह जंगल एक काल्पनिक घण्टाकरण नाम के भूत की राजधानी बन गया था। नगर निवासी इस घटना से अत्यन्त भयभीत हो गये थे। वे जंगल से दूर ही रहते थे और भूलकर भी वहाँ जाने की हिम्मत नहीं जुटा पाते थे।

- (iii) घण्टाकरण भूत की इस काल्पनिक घटना से राजा बहुत चिन्तित हो गया था क्योंकि जंगल अब किसी काम में नहीं आ रहा था जिससे हजारों रुपये की सालाना आमदनी की हानि हो रही थी।

भूत को जंगल से निकालने के लिए अनेक सयानों और जादूगरों को बुलाया गया। पण्डितों ने चण्डी जाप और हनुमान चालीसा का पाठ किया। मुल्लाओं ने कुरान पढ़ी। किसी ने भैरों को याद किया, किसी ने काली माता की मन्त तो किसी ने पीर-पैगम्बर को मनाया। इस प्रकार घण्टाकरण भूत से छुटकारा पाने के लिये अनेक जप व जादू-टोनों का सहारा लिया गया।

- (iv) एक दिन एक चतुर व्यक्ति का नगर में आगमन हुआ जो भूत-प्रेत, जादू-टोने की निराधार बातों पर विश्वास नहीं करता था। उसने

अपने विवेक का सहारा लेकर इस घटना की तह में जाने का प्रयास किया। उसने यह भी अनुमान लगाया कि कहीं कुछ डाकू उस जंगल का स्वयं के उपयोग हेतु यह झूठी बातें कह कर अपनी सुरक्षा का साधन न बनाना चाहते हों।

अतः सच्चाई जानने के लिए वह एक साधु के वेश में जंगल में घुसा और देखा कि वह घण्टा बन्दरों के पास था जिसे वे बजाते थे। उसकी सोच सही निकली। उसने नगरवासियों से एक गाड़ी भुने चने माँगे जिससे वह भूत को पकड़ सके। उसने भुने चने बन्दरों के सामने डाले। बन्दर चने खाने लगे, तुरन्त उस चतुर व्यक्ति ने घण्टा उठाया और राजसभा में घण्टा ले जाकर राजा को दे दिया। उसके इस कृत्य पर उसे सम्मानित किया गया। इस प्रकार उसने नगरवासियों के अन्धविश्वास का अन्त कर सच से अवगत कराया।

- (v) इस गद्यांश से हमें शिक्षा मिलती है कि हमें व्यर्थ की अफवाहों पर या अन्धविश्वासों पर ध्यान नहीं देना चाहिए तथा अपने विवेक और बुद्धि का प्रयोग करना चाहिए।

Answer 4.

- (i) अनुभव — अनुभवी पूजा — पूजनीय
(ii) पुत्री — सुता, घमंड — अहंकार, आत्मजा — दर्प
(iii) अपमान — सम्मान अमावस्या — पूर्णिमा उत्थान — पतन निन्दा — प्रशंसा
(iv) मुँह में पानी भर आना (मन ललचाना)—रसगुल्ला देखकर मेरे मुँह में पानी भर आया।
टाँग अड़ाना (अड़चन लगाना)—मेरे मित्र में यह बहुत बड़ी बुराई है कि वह व्यर्थ में ही दूसरों के काम में टाँग अड़ाता है।
(v) सेवक—सेवा बच्चा—बचपन
(vi) (a) उसने दुश्मन की सेना पर हमला किया।
(b) विद्यार्थी पुस्तक पढ़ रहे हैं।
(c) अन्ना हजारे ने सरकार का लोकपाल बिल स्वीकार नहीं किया।

Section B is not given due to change in the present syllabus.



QUESTIONS

SECTION 'A' (40 Marks)

Attempt all questions.

Question 1.

Write a short composition in **Hindi** of approximately 250 words on any **one** of the following topics : [15]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 250 शब्दों में संक्षिप्त लेख लिखिए :

- प्रातःकालीन भ्रमण से क्या-क्या लाभ हैं ? क्या आप प्रातः भ्रमण के लिए जाते हैं ? बताइये कि प्रातःकाल का दृश्य कैसा होता है ?
- कल्पना कीजिए कि आप “कौन बनेगा करोड़पति” में पाँच करोड़ रुपये जीत गये हैं। उससे आपको कोई तीन कार्य करने हैं। आप कौन-कौनसे कार्य करेंगे, जिससे आपको अधिकतम संतुष्टि प्राप्त हो सके।
- ‘असफलता ही सफलता का आधार है’—विषय के पक्ष या विपक्ष में अपने विचार प्रकट कीजिए।
- एक कहानी लिखिए जिसका आधार निम्नलिखित उक्ति हो—
“वही मनुष्य है कि जो मनुष्य के लिए मरे।”
- दिये गये चित्र को ध्यान से देखिए। चित्र को आधार बनाकर वर्णन कीजिए अथवा कहानी लिखिए जिसका सीधा व स्पष्ट सम्बन्ध चित्र से होना चाहिए।



Question 2.

Write a letter in **Hindi** in approximately 120 words on any **one** of the topics given below : [7]

निम्नलिखित विषयों में से किसी एक विषय पर हिन्दी में लगभग 120 शब्दों में पत्र लिखिए—

- 2011 में दिये जाने वाले ‘बच्चों के वीरता पुरस्कार’ के लिए आपको चुना गया है, अपने मित्र को पत्र द्वारा प्रसन्नता तथा उत्तेजना की भावनाओं से अवगत कराते हुए, उस घटना का संक्षिप्त वर्णन कीजिए जिसके कारण आपको इस पुरस्कार के लिए चयनित किया गया।

- आपने नया कम्प्यूटर खरीदा है, किन्तु खरीदने के एक महीने बाद ही उसमें खराबी आ गयी। आपकी शिकायत पर दुकानदार ने कोई ध्यान नहीं दिया। कम्पनी के मुख्य मैनेजर को पत्र लिखकर घटना की जानकारी देते हुए उनसे अनुरोध कीजिए कि वे आपके साथ न्याय करें।

Question 3.

Read the passage given below and answer in **Hindi** the questions that follow, using your own words as far as possible:—

निम्नलिखित गद्यांश को ध्यान से पढ़िए तथा उसके नीचे लिखे प्रश्नों के उत्तर हिन्दी में लिखिए। उत्तर यथासम्भव आपके अपने शब्दों में होने चाहिए:—

राणा संग्राम सिंह वीरगति प्राप्त कर चुके थे। चित्तौड़ के सिंहासन पर उनके बड़े पुत्र विक्रमादित्य बैठे, किन्तु उनकी अयोग्यता के कारण राजपूत सरदारों ने उन्हें गद्दी से हटा दिया। राणा साँगा के छोटे पुत्र उदयसिंह राज्य के उत्तराधिकारी घोषित किये गये, किन्तु वे अभी छः वर्ष के बालक थे। अतएव दासी-पुत्र बनवीर को उनका संरक्षक और उनकी ओर से राज्य का संचालनकर्ता बनाया गया, क्योंकि महारानी करुणावती का भी स्वर्गवास हो चुका था।

राज्य का लोभ मनुष्य को मनुष्य नहीं रहने देता। बनवीर भी राज्य के लोभ से पिशाच बन गया। उसने सोचा कि यदि राणा साँगा के दोनों पुत्रों को मार दिया जाए तो चित्तौड़ का सिंहासन उसके लिए निष्कण्टक हो जाएगा। इसी विचार से एक रात नंगी तलवार लिए वह अपने भवन से निकला। उसने लालच में अन्धे होकर विक्रमादित्य की हत्या कर दी।

राजकुमार उदयसिंह सायंकाल का भोजन करके सो चुके थे। उनका पालन-पोषण करने वाली पन्ना धाय को बनवीर के बुरे अभिप्राय का कुछ पता न था। रात में जूटे पतल हटाने बारिन आयी। उसने पन्ना को बनवीर द्वारा विक्रमादित्य की हत्या का समाचार दिया। बारिन उस समय वहीं थी और बनवीर का यह कुकृत्य देखकर किसी प्रकार भागी हुई पन्ना के पास आयी थी। उसने कहा—‘वह यहाँ आता ही होगा’।

पन्ना चौंकी और उसे अपना कर्तव्य स्थिर करने में क्षणभर भी न लगा। उसने बालक उदयसिंह को उठाकर बारिन को दे दिया और कहा—‘इन्हें लेकर चुपचाप निकल जाओ। मैं तुम्हें वीरा नदी के तट पर मिलूँगी।’

उदयसिंह सो रहे थे। उन्हें टोकरे में लिटाकर, ऊपर से पतलें ढककर बारिन राजभवन से निकल गयी। इधर पन्ना ने अपने पुत्र चन्दन को कपड़ा उढ़ाकर उदयसिंह के पलंग पर सुला दिया। दोनों बालक लगभग एक ही अवस्था के थे। अपने स्वामी के बालक और राज्य के उत्तराधिकारी की रक्षा के लिए उस धर्मनिष्ठ धाय ने अपने कलेजे के टुकड़े का बलिदान करने का निश्चय कर लिया था।

नंगी रक्त सनी तलवार लिए बनवीर कुछ क्षणों के बाद ही आ धमका। उसने कड़क कर पूछा—‘उदय कहाँ है?’

पन्ना धाय ने अँगुली से अपने सोते पुत्र की ओर संकेत कर दिया। तलवार उठी और उस अबोध बालक का सिर धड़ से अलग हो गया। बनवीर चला गया। कर्त्तव्यनिष्ठ पन्ना धाय के मुख से न चीख निकली, न नेत्रों से आँसू गिरे। उसे तो अभी अपना धर्म निभाना था। उसका हृदय फटा जाता था। पुत्र का शव लेकर वह राजभवन से निकली।

वीरा नदी के तट पर उसने पुत्र का अन्तिम संस्कार किया और मेवाड़ के नन्हें निद्रित अधीश्वर को लेकर रात्रि में ही मेवाड़ से बाहर निकल गयी। बेचारी धाय! कोई उसे आश्रय देकर बनवीर से शत्रुता मोल लेना नहीं चाहता था। अतः वह एक से दूसरे ठिकानों में भटकती फिरी। अन्त में देयरा के आशाशाह ने उसे आश्रय दिया। बनवीर को उसके कर्म का दण्ड मिलना था, मिला। राणा उदयसिंह जब गद्दी पर बैठे, पन्ना धाय की चरण-धूलि अपने मस्तक पर लगाकर उन्होंने अपने को धन्य माना। पन्ना चित्तौड़ की सच्ची धात्री सिद्ध हुई और सेवक धर्म के आदर्श का पाठ दुनिया को सिखा गयी। पन्ना धाय की उज्ज्वल कीर्ति अमर है।

- (i) बनवीर कौन था ? लोभ में पड़कर उसने क्या सोचा ? [2]
 (ii) पन्ना धाय को बनवीर के बुरे अभिप्राय का कब व किस प्रकार पता चला ? [2]
 (iii) पन्ना धाय ने क्या निर्णय लिया और क्यों ? [2]
 (iv) पन्ना धाय वीरा नदी के तट पर क्यों पहुँची ? उसे अनेक ठिकानों पर क्यों भटकना पड़ा ? [2]
 (v) प्रस्तुत गद्यांश से आपको क्या शिक्षा मिली ? [2]

Question 4.

Answer the following questions according to the instructions given :—

निम्नलिखित प्रश्नों के उत्तर निर्देशानुसार लिखिए—

- (i) निम्न शब्दों से विशेषण बनाए—
 दिन, माया। [1]
 (ii) निम्न शब्दों में से किसी एक शब्द के दो-दो पर्यायवाची शब्द लिखिए :—
 भाग्य, पवित्र। [1]
 (iii) निम्न शब्दों में से किन्हीं दो शब्दों के विपरीतार्थक शब्द लिखिए :—
 साकार, क्षणिक, विस्तृत, कीर्ति। [1]
 (iv) निम्नलिखित मुहावरों में से किसी एक की सहायता से वाक्य बनाइए :—
 जहर का घूँट पीना, नाक रख लेना। [1]
 (v) भाववाचक संज्ञा बनाइए—
 एक, उड़ना। [1]
 (vi) कोष्ठक में दिए गए निर्देशानुसार वाक्यों में परिवर्तन कीजिए—
 (a) घर जाने में एकमात्र चार दिन शेष हैं। [1]
 (वाक्य शुद्ध कीजिए)
 (b) एक नवयुवक को यह बन्धन पसन्द नहीं आया। [1]
 (‘पसन्द’ के स्थान पर ‘अच्छा’ शब्द का प्रयोग कीजिए)
 (c) विद्यार्थियों ने एक निबन्ध लिखा। [1]
 (वाक्य को वर्तमानकाल में बदलिए)

ANSWERS

SECTION 'A'

Answer 1.

(i) “प्रातःकालीन भ्रमण का दृश्य”

“सच्चा सुख निरोगी काया” सुखद जीवन के सन्दर्भ में यह उक्ति नितान्त सत्य है। जीवन को सुखमय बनाने के लिए मन की प्रसन्नता परमावश्यक है। मन की प्रसन्नता के लिए स्वस्थ शरीर आवश्यक है। शरीर के स्वास्थ्य का आधार पौष्टिक आहार ही नहीं है बल्कि शारीरिक श्रम भी उतना ही महत्वपूर्ण है, दोनों के संयोग से ही मानव आनन्दमय जीवन व्यतीत कर सकता है।

प्रातःकाल के भ्रमण से मानव को विशेष आनन्द की प्राप्ति होती है। प्रकृति के मनोहारी दृश्यों को देखकर वह फूला नहीं समाता। उसका हृदय कमल विकसित हो जाता है। प्रातःकालीन भ्रमण मनुष्य को शारीरिक शक्ति ही प्रदान नहीं करता, अपितु उसकी मानसिक शक्ति का भी विकास करता है। प्रातःकालीन भ्रमण से प्राप्त ताजगी व ऊर्जा मानव को सन्ध्याकाल तक प्रसन्नता का अहसास कराती है। सुबह की शीतल व तरोताजा करने वाली वायु का सेवन करने से मनुष्य के मुख पर तेज आता है। रक्त संचार बढ़ता है। माँसपेशियों में बल आता है। अंग-प्रत्यंग क्रियाशील रहता है। पाचनशक्ति बढ़ती है। मस्तिष्क तरोताजा रहता है। विचारशक्ति में वृद्धि होती है और आत्मविश्वास में बढ़ोत्तरी होती है। वृद्धावस्था में प्रातःभ्रमण

तो संजीवनी बूटी और अमृत के समान है। प्रातःकाल घूमने वाला व्यक्ति स्वस्थ रहता है। उसका शरीर सदैव स्फूर्ति से भरा रहता है। आलस्य उसके पास नहीं फटकता। प्रातःकालीन शुद्ध वायु जब नासिका द्वारा शरीर में प्रवेश करती है तो हमारा रक्त शुद्ध होता है, फेफड़ों को बल मिलता है। शरीर निरोग रहने से मानव का बौद्धिक विकास होता है। वह कुशाग्र बुद्धि, उद्योगी व महान अध्यवसायी बनता है।

प्रतिदिन प्रातःकालीन भ्रमण मेरे दैनिक जीवन का प्रमुख अंग है। मेरी दिनचर्या इसी से प्रारम्भ होती है। मैं इसका इतना अभ्यस्त हूँ कि प्रातः पाँच बजे मेरी निद्रा खुल जाती है और मैं ठीक साढ़े पाँच बजे भ्रमण के लिए निकल जाता हूँ। प्रातःकालीन भ्रमण पर नियमित जाने का कारण मेरा एक मुख्य आकर्षण सत्संगति भी है अर्थात् वहाँ मेरी भेंट सज्जन मित्रों से होती है। अनेक धार्मिक चर्चाएँ होती हैं। जहाँ एक ओर शारीरिक शोधन होता है वहीं पर प्रातःभ्रमण आत्मशुद्धि का बहुत बड़ा साधन बन जाता है।

प्रातःकाल का दृश्य बड़ा सुहावना होता है। सूर्य देवता के प्रवेश की आहट पाते ही अंधकार व चन्द्रमा प्रस्थान कर जाते हैं। लालिमा से युक्त उषा सुन्दरी पूर्व के झरोखे से धीरे-धीरे मुस्कराती हुई दृष्टिगोचर होती है। पक्षी अपने घोंसलों को छोड़ कलरव करते हुए आकाश में विचरण करते हैं। शीतल सुगन्धित वायु प्रवाहित होती है। बाग-बगीचों में रंग-बिरंगे फूल खिल जाते हैं। वृक्ष मस्त होकर

झूमने लगते हैं। तालाबों व नदियों में वायु से तरंगें सुशोभित होती हैं। हरी-भरी घास पर ओस की बूँदें हीरों के समान चमकती हुई सुशोभित होती हैं। इन सुन्दर दृश्यों को देखकर मन प्रसन्न रहता है और भ्रमण से स्वास्थ्य भी अच्छा रहता है। अतः हम सभी को प्रातः कालीन भ्रमण को अपनी दिनचर्या में शामिल अवश्य करना चाहिये।

(ii)

“कौन बनेगा करोड़पति”

मेरा भी एक सपना था कि मैं “कौन बनेगा करोड़पति” की कुर्सी पर फिल्म जगत के सुप्रसिद्ध फिल्म स्टार अमिताभ बच्चन के सामने बैठूँ और अच्छी धनराशि बटोरूँ। भाग्य ने साथ दिया और मैं अपनी बुद्धिमत्ता के आधार पर पाँच करोड़ रुपये जीतकर करोड़पति बन गया। मुझे विश्वास नहीं हो रहा था कि मैं इतनी सम्पत्ति का मालिक बन गया हूँ। बचपन से ही मेरी प्रवृत्ति समाज सेवा में रही है। अतः जैसे ही मैंने पाँच करोड़ रुपये जीते मेरे मस्तिष्क में होटलों में काम करते छोटे-छोटे बालकों की तस्वीरें नाच गईं। सड़कों पर बूट पॉलिश करते तथा गारा व ईंटें ढोते बच्चे दृष्टिगोचर हो गये। साथ ही, धन के अभाव में अकाल मृत्यु के ग्रास बने वे गरीब दिखाई देने लगे जिन्हें उचित उपचार न मिलने के कारण मृत्यु को बरबस ही गले लगाना पड़ता है।

मैंने सोचा अपने सुखों के लिए तो मनुष्य सामान जुटाता ही है, परन्तु पर-पीड़ा को समझने वाला मनुष्य ही ईश्वर का सच्चा सेवक है। मैंने घर आकर पूर्णरूप से निश्चय कर लिया कि मैं अपने पाँच करोड़ रुपयों में से अपने गाँव में एक छोटा-सा अस्पताल और एक छोटा-सा विद्यालय खोलूँगा।

मैं शहर का निवासी हूँ जहाँ मैंने काफी धन कमा लिया है, लेकिन मेरे गाँव की हालत आज भी दयनीय है। मैं अपने गाँव में विद्यालय खोलकर गाँव के हर बालक को शिक्षित करना चाहूँगा। वहाँ अच्छे अध्यापकों की नियुक्ति करूँगा जो बालकों को पूरी मेहनत से शिक्षा प्रदान करेंगे।

इसके साथ ही एक छोटा-सा अस्पताल भी खोलना चाहूँगा जिससे गाँव के लोगों को उचित उपचार के अभाव में अपने प्राण न गँवाने पड़ें। कुछ धनराशि मैं अपने लिए भी रखूँगा जो मेरे परिवार के काम आये।

इस प्रकार के कार्यों को करते हुए मैं संस्कृत में उद्धृत “त्यक्तेन भुञ्जीथा” के आदर्श को प्रस्तुत करना चाहता हूँ जिसका अर्थ होता है त्याग करते हुए भोग करना चाहिए।

(iii)

“असफलता ही सफलता का आधार है”

पक्ष में :—

यह संसार कर्म प्रधान है। हर प्राणी कर्म के बंधन में बंधा है। कार्यरत मनुष्य जब अपने कर्म की पूर्णता पर पहुँच जाता है और कर्म का परिणाम अच्छा होता है तो वह सफल है और इसके विपरीत कार्य को सम्पन्न न कर पाने वाला व्यक्ति अथवा इच्छित परिणाम ना प्राप्त कर पाने वाला व्यक्ति असफल कहलाता है। जीवन में इस प्रकार के क्षण अनेक बार आते हैं, परन्तु इसका यह अर्थ नहीं कि असफल होने वाला व्यक्ति फिर सफल नहीं होगा। असफलता मनुष्य को प्रेरणा देती है कि पुनः कार्य को पूरी शक्ति से व पूरे परिश्रम से करो, सफलता अवश्य मिलेगी। भारतीय इतिहास में ऐसे अनेक उदाहरण हैं जो यह बताते हैं कि गिरने वाला व्यक्ति ही पुनः सँभलकर चलने का प्रयास करता है। उसे समझना चाहिए कि कहीं

न कहीं उसकी मेहनत में कुछ कमी अवश्य रह गई है। उसे हिम्मत नहीं हारनी चाहिए।

रावण अपनी तपस्या में अनेक बार विफल हुआ, परन्तु उसने हिम्मत नहीं हारी, अन्त में सफल होकर जो चाहा वही पाया। बालक ध्रुव पिता का प्यार पाने में असमर्थ रहा, किन्तु उसने प्यार पाने का दूसरा तरीका अपनाते हुए परमपिता की तपस्या की और पिता से भी महान परमेश्वर का प्यार प्राप्त किया। यदि मन में दृढ़ विश्वास है, धैर्य है, परिश्रम में कमी नहीं है तो संसार में कोई कार्य ऐसा नहीं है जिसमें मनुष्य को सफलता प्राप्त न हो सके।

महमूद गजनवी ने 17 बार आक्रमण किये। 16 बार असफल रहने के बाद सत्रहवीं बार सफल हुआ। महात्मा गाँधी अंग्रेजों से भारत देश को स्वतन्त्र कराने के लिए अनेक बार असफल हुए, अन्त में उन्होंने सफलता प्राप्त की तथा अंग्रेजों को उनके समक्ष घुटने टेकने पड़े। अब्राहम लिंकन ने भी अपनी हिम्मत, धैर्य और परिश्रम से ही अपने जीवन की अनेक असफलताओं पर विजय प्राप्त करते हुए सफलता प्राप्त की। राजा भागीरथ की अनेक पीढ़ियों ने गंगा को पृथ्वी पर लाने के लिए अनेक प्रयास किये, परन्तु वे असफल रहे। भागीरथ ने हिम्मत नहीं हारी तथा घोर तपस्या की जिसके कारण वे गंगा को पृथ्वी पर ला सके।

विपक्ष में :—

जिस प्रकार हर सिक्के के दो पहलू होते हैं उसी प्रकार असफलता, कुछ परिस्थितियों में मानव के लिए घातक भी सिद्ध हो जाती है। कई बालक भावनात्मक रूप से अधिक मजबूत नहीं होते। कई लोग ऐसी परिस्थितियों में होते हैं जिसमें बार-बार असफल हो के फिर से सफल होने का प्रयास करने की गुज़ांश ही नहीं होती। ऐसे लोग असफलता मिलने पर इतने निराश हो जाते हैं कि जीवन में आगे बढ़ने का विचार ही त्याग देते हैं। या तो वे उसी तरह जीते रहते हैं या फिर जीवन ही समाप्त कर लेते हैं।

असफलता का मुख्य कारण कहीं न कहीं हमारे प्रयास में कमी रह जाना है। असफल होने पर निराश होने की आवश्यकता नहीं है, बल्कि दुगुने जोश से परिश्रमपूर्वक जुट जाना चाहिए। सफलता परिश्रमियों के चरण चूमती है। काम में जुनून होना चाहिए। किसी शायर ने ठीक ही कहा है—

आकाश में भी छेद हो सकता है।

जरा तबीयत से पथर तो उछालो यारो।

इसलिए कोई कार्य असम्भव नहीं है। केवल कार्य की सफलता का आधार तबीयत से परिश्रम करने पर आधारित है और कर्मवीर असफलताओं से शिक्षा ग्रहण करते हैं निराश नहीं होते।

(iv)

“वही मनुष्य है कि जो मनुष्य के लिए मरे”

“वह शरीर क्या जिससे जग का

कोई भी उपकार न हो।

वृथा जन्म उस नर का जिसके

मन में दया विचार न हो।”

वही मनुष्य मनुष्यता के गुणों से सम्पन्न है जो मनुष्य की भलाई के लिए अपने प्राणों का भी परित्याग कर देता है।

महाराष्ट्र की भूमि पर जन्मे बाबा आम्टे इस उक्ति का जीता-जागता उदाहरण हैं जिन्होंने अपना सम्पूर्ण जीवन मानवता की भलाई के लिए ही न्यौछावर कर दिया। उस दिव्य आत्मा को हम शत-शत प्रणाम करते हैं।

मुरलीधर देवीदास आम्ते एक सम्पन्न परिवार में जन्मे थे। भौतिक सुखों की उनके जीवन में कमी नहीं थी, लेकिन इस समृद्ध जीवन में भी उनके अन्तःस्तल में कहीं गहरी बेचैनी पल रही थी। कहावत है “जहाँ चाह वहाँ राह” अर्थात् परोपकारी मानसिकता के धनी बाबा आम्ते को अन्ततः अपने जीवन की राह मिल गई।

एक बार दीपावली के अवसर पर पटाखों के लिए मिले पैसे जब उन्होंने एक भिखारी के डिब्बे में डाल दिये तो उसकी अतिशय प्रसन्नता को देख मुरलीधर (बाबा आम्ते) की आँखें भर आईं। यही नहीं, उनके जीवन की दूसरी घटना ने तो उन्हें पूरी तरह ही बदल दिया। 14 वर्ष का बालक मुरलीधर बरसात की शाम को कहीं जा रहा था। अचानक उसने बारिश की बूंदों में भीगता, सिकुड़ा, सिमटा-सा आकार देखा। वह चीथड़ों में लिपटा गट्ठर उसे एक जीवित इंसान लगा। ध्यान से देखने पर पता चला कि वह कुष्ठ रोग की अन्तिम अवस्था तक पहुँच चुका था। मांस के सड़े-गले लोथड़े को देखकर बालक डर कर भागा, परन्तु भाग न पाया।

उसकी दो आँखें चमक रही थीं, उँगलियों का नामोनिशान नहीं था, शरीर पर कीड़े रेंग रहे थे। मुरलीधर का हृदय द्रवित हो गया। बाहों में उसे उठाया ही था कि उसने दम तोड़ दिया। तुलसीराम नाम के इस कोढ़ी ने बालक मुरलीधर के हृदय पर ऐसी गहरी छाप छोड़ी जिसने बालक मुरलीधर को बाबा आम्ते की पदवी से सुशोभित किया।

बाबा आम्ते ने ‘आनन्द वन’ के नाम से वरौरा में एक गाँव बसाया। जहाँ संसार-भर के अपाहिजों, कोढ़ियों और वृद्धों को आश्रय ही नहीं बल्कि जीवन का सम्पूर्ण सुख प्राप्त है। बाबा का सम्पूर्ण परिवार उनके इस परोपकारी कार्य में संलग्न है।

बाबा के अथक परिश्रम से ‘आनन्द वन’ सब प्रकार से सम्पन्न है। जिसके विकास का आधार वे ही अपाहिज, कोढ़ी एवं वृद्ध हैं, वहाँ पर बने घर, सामूहिक रसोई, खेती, सिंचाई, कारखाने, हॉस्पिटल, कॉलेज आदि इस बात की दुहाई दे रहे हैं कि मनुष्य अपने परिश्रम, लगन, दृढ़ निश्चय, परस्पर सहयोग एवं आत्मविश्वास से अपाहिज होते हुए भी स्वाभिमानी जीवन व्यतीत कर सकता है। ऐसा व्यक्ति कभी किसी का मोहताज नहीं होता। बाबा का सिद्धान्त था—कर्म से अन्तःसृजन होता है। दया मनुष्य को कमजोर बनाती है। उनका कहना था कि अपाहिजों को अवसर दीजिये, भीख नहीं।

आज बाबा आम्ते के द्वारा बसाये गाँव ‘आनन्द वन’ में सर्वत्र आनन्द है। लाखों लोग उनके द्वारा दिये गये सुखों के कारण आनन्दमय जीवन व्यतीत कर रहे हैं। आज बाबा जीवित नहीं हैं, परन्तु मानव रूप में जो परोपकार उन्होंने मनुष्यों के लिए किया वह उन्हें देवताओं की श्रेणी में रखने योग्य है। वह ईश्वर की अद्वितीय रचना थे। बाबा आम्ते मनुष्यता के लिए जीवित रहे और उसी के लिए मर गये।

(v) चित्र प्रस्ताव

प्रस्तुत चित्र रेलवे स्टेशन पर बने पुल का है जिस पर लोग चढ़ रहे हैं वहीं सीढ़ियों के कोने पर एक 13-14 वर्ष का बालक एक व्यक्ति के जूतों पर पॉलिश करके उन्हें कपड़े से चमकाने का प्रयास कर रहा है। बालक की मुखमुद्रा प्रसन्न है। वह उस व्यक्ति से कुछ बातें कर रहा है।

यह चित्र बाल-मजदूरी की समस्या की ओर संकेत कर रहा है। किसी समय में सोने की चिड़िया कहा जाने वाला भारत देश आज गरीबी का शिकार बना हुआ है। उसका सबसे बड़ा कारण बढ़ती जनसंख्या और अशिक्षा है। इसी कारण भारत के नौनिहालों का भविष्य अन्धकारमय है।

बालकों का मन सामान्यतया जीवन की वास्तविकताओं से अनभिज्ञ रहता है। उनका बचपन खाने खेलने तक ही सीमित रहता है, थोड़ा बड़ा होता है तो पाठशाला की राह ले लेता है। माता-पिता का संरक्षण उसे कभी जीवन की कठिनाइयों का अहसास नहीं होने देता, परन्तु वे अभागे क्या करें ? जिन्हें यह जीवन नसीब नहीं होता। पेट की भूख या तो उनसे भीख माँगा देती है या चोरी जैसे अपराध कराती है या फिर किसी होटल, दुकान या ठेकेदार के यहाँ मजदूरी करने पर विवश कर देती है यह चित्र इसी विवशता का पर्याय है। इस चित्र को देखकर एक घटना स्मरण हो आई।

एक गाँव में एक परिवार रहता था। परिवार में पति-पत्नी के अतिरिक्त तीन बच्चे थे। परिवार का मुखिया मजदूरी से इतना कमा लेता था कि दाल-रोटी की व्यवस्था हो जाती थी। तभी उसे शराब की लत पड़ गई। फलस्वरूप घर में कलह का साम्राज्य हो गया। उसकी पत्नी भी काम करती थी, लेकिन उसकी कमाई से बच्चों का पेट भी नहीं भरता था। पति तो जितना कमाता, सब शराब में उड़ा देता था। उस पर कहर यह था कि उसके यहाँ तीन साल में बच्चों की संख्या 3 से 6 हो गई। रामू उसका बड़ा बेटा था जिसकी उम्र लगभग 14 वर्ष थी। यहाँ उसने सोचा पिता तो सुधरने वाला नहीं हैं और माँ बेचारी कितना करेगी। हार कर उसने जूतों पर पॉलिश करने का काम शुरू कर दिया क्योंकि उसे लगा इसमें खर्चा कम है और पेट भरने को पैसे भी मिल जायेंगे। एक जूते पर पॉलिश करने पर उसे पाँच रुपये मिल जाते थे। इस प्रकार दिन भर में 10 ग्राहक भी मिलते तो वह पचास रुपये कमा लेता था। ये पैसे जब वह माँ को देता तो माँ को डूबते को तिनके का सहारा के समान लगता था। वह उसे बहुत दुआएँ देती थी, परन्तु उसे यह नहीं पता था कि बालपन में रामू के द्वारा किया गया यह कार्य उसका भविष्य बर्बाद कर रहा है। रामू की यह उम्र पढ़-लिख कर जीवन को उज्ज्वल बनाने की थी, परन्तु हाथ रे पेट की भूख—तूने इस बालक को मात्र बाल मजदूर बनाकर छोड़ दिया। हमारे देश की इस समस्या ने करोड़ों बच्चों के जीवन का नाश किया है। सरकार को चाहिए कि वह इन बच्चों के लिए सख्त नियम बनाये जिससे बाल मजदूर समस्या का अन्त हो सके।

Answer 2.

- (i) 1/60 कमला नगर,
इन्दौर।

दिनांक : 10-01-20XX

प्रिय मित्र,
कुशलपूर्वक रहकर तुम्हारी सपरिवार कुशलता की कामना करता हूँ। अपरञ्च समाचार यह है कि मुझे अभी-अभी एक पत्र भारत सरकार से प्राप्त हुआ है जिसमें मुझे वीरता पुरस्कार देने की बात कही गई है। यह पुरस्कार 26 जनवरी, 2011 को हमारे देश के राष्ट्रपति देंगे। अनेक बच्चों में मेरा भी चयन इस हेतु किया गया है। मित्र ! यह पढ़कर मैं उछल गया। अब बेसब्री से उस दिन की प्रतीक्षा कर रहा हूँ जब मेरे साहसपूर्ण कार्य का उल्लेख करते हुए मुझे यह वीरता पुरस्कार दिया जायेगा।

मित्र ! अब तुम अवश्य जानने को उत्सुक होंगे कि वह कौन-सी घटना थी जिसके लिए मुझे यह पुरस्कार मिल रहा है। एक बार मैं अपने ट्यूशन से घर जा रहा था उस समय अँधेरा-सा हो गया था। मुझे कुछ 2 मीटर आगे एक लड़की जा रही थी। वह अकेली थी। तभी एक कार उसके पास आकर रुकी और दो युवकों ने जबर्दस्ती लड़की को कार में खींच लिया। वह सहायता के लिए चिल्लाई, परन्तु वहाँ कोई नहीं था। मैं स्थिति को भाँप गया, फुर्ती से मैंने कार

का नम्बर लिखा और पुलिस को फोन कर दिया। पुलिस ने शीघ्र ही एक्शन लिया और उसे बाईपास पर मथुरा के समीप दबोच लिया। कार में लड़की बेहोशी की अवस्था में मिली, परन्तु वह बिलकुल सुरक्षित थी।

लड़की के माता-पिता को जब यह पता चला कि पुलिस को सूचना देने वाला एक दसवीं कक्षा का 15 वर्ष का छात्र था तो उनकी आँखें आँसुओं से भर गईं। वे बार-बार दुआएँ दे रहे थे, कह रहे थे बेटा आज तूने अपनी बहन की लाज बचाई है भगवान तुम्हें लम्बी उम्र दे।

थानाध्यक्ष ने मोबाइल नम्बर से मेरा नाम व पता लेकर नई दिल्ली भेज दिया। जहाँ से मुझे यह पत्र प्राप्त हुआ। मुझे आज बेहद प्रसन्नता हो रही है। आज मेरे माता-पिता भी गौरवान्वित अनुभव कर रहे हैं। आशा है तुम्हें भी यह समाचार सुनकर प्रसन्नता होगी। अपने परिवार में मेरा सबको प्रणाम व आशीर्वाद कहना।

पत्रोत्तर की प्रतीक्षा में,
तुम्हारा मित्र,
प्रणव

- (ii) सेवा में,
ए. पी. सी. कम्प्यूटर्स,
मुम्बई।

विषय : नये कम्प्यूटर में खराबी आने के सन्दर्भ में।

माननीय महोदय,
इस पत्र के माध्यम से मैं आपको अवगत कराना चाहता हूँ कि मैंने 'एक्सपर्ट कम्प्यूटर' से लगभग बीस दिन पहले एक कम्प्यूटर खरीदा था, लेकिन प्रारम्भ से उसमें कठिनाइयाँ आ रही हैं। सर्वप्रथम तो उसका सी.पी.यू. अच्छे तरीके से काम नहीं कर रहा है। बहुत जल्दी वायरस का शिकार हो जाता है। कई बार शिकायतें भी की हैं। एक दो बार तकनीशियन आकर देख गया परन्तु दिक्कतें बनी हुई हैं।

महोदय, बड़ी धनराशि खर्च करके भी निराशा हाथ लगी है। दुकानदार का व्यवहार बहुत ही असभ्यता भरा है। मेरा आपसे विनम्र निवेदन है कि उक्त दुकानदार को निर्देश देकर मेरे साथ न्याय कराइये। मैं आपका अत्यन्त आभारी रहूँगा।

आशा है आप मेरी समस्या का समाधान अतिशीघ्र करेंगे।

भवदीय,
प्रणव दास
A-ब्लॉक, विभव नगर,
36, रेड क्वाटर,
मुम्बई।
दिनांक 28-1-20XX

Answer 3.

- (i) बनवीर दासी पुत्र था जो चित्तौड़ के सिंहासन पर उस समय विराजमान हुआ जब राणा सांगा वीरगति को प्राप्त हुए क्योंकि उनका बड़ा पुत्र विक्रमादित्य राज्य संचालन में अयोग्य था। उस समय बनवीर को राणा सांगा के छोटे पुत्र उदयसिंह के बड़े होने तक उनका संरक्षण व राज्य संचालन का कार्य सौंपा गया। लोभ में पड़कर उसने सोचा कि यदि राणा सांगा के दोनों पुत्रों का वध कर दिया जाये तो चित्तौड़ का सिंहासन उसके लिए सुरक्षित हो जायेगा।

- (ii) चित्तौड़ के शासन का लोलुप बनवीर अपने मार्ग में आये कंटकों व विक्रमादित्य व उदयसिंह को खत्म कर देना चाहता था। अतः एक रात नंगी तलवार लिए वह निकला। सबसे पहले विक्रमादित्य का वध करके वह उदयसिंह की ओर बढ़ने वाला था कि तभी जूठी पत्तलें उठाने वाली बारिन ने उदय की संरक्षिका पन्ना धाय को बनवीर की क्रूर मनोवृत्ति से अवगत कराया।

- (iii) जैसे ही बारिन ने उदय की संरक्षिका पन्ना धाय को बताया कि बनवीर राजकुमार विक्रमादित्य का वध कर चुका है और अब उदय के महल की ओर बढ़ रहा है। पन्ना धाय अपनी कर्तव्यपरायणता के प्रति दृढ़ हो गई। उसने तुरन्त अपने पुत्र चन्दन को, जो उदय का समवयस्क था, उसके पलंग पर लिटाकर वस्त्र से पूरा ढक दिया और उदय को बारिन के साथ टोकरी में लिटाकर, जूठी पत्तलों से ढककर राजभवन से बाहर भेज दिया।

- उसने चित्तौड़ के उत्तराधिकारी को सुरक्षित रखने के लिए अपने पुत्र का बलिदान दे दिया क्योंकि उसके लिए देश, पुत्र से बढ़कर था। वह एक देशभक्त व कर्तव्यनिष्ठ स्वामिभक्त दासी थी जिसने अपने देश की रक्षा के लिए पुत्र का बलिदान दिया ताकि देश की सुरक्षा करने वाला राज्य का उत्तराधिकारी जीवित रह सके।

- (iv) पन्ना वीरा नदी पर इसलिए पहुँची थी क्योंकि मेवाड़ का भावी राजा बारिन के साथ वहीं पर था जिसको जीवित रखना अब उसके लिए एक चुनौती बन गई थी साथ ही, अपने हृदय के टुकड़े का अन्तिम संस्कार भी उसे उसी नदी पर करना था।

- पुत्र का अन्तिम संस्कार करके वह मेवाड़ के सोये हुए नन्हे राजा को लेकर आधी रात में ही मेवाड़ से बाहर निकल गई। वह जगह-जगह भटकती। किसी ने उसे आश्रय इसलिए नहीं दिया क्योंकि कोई व्यक्ति उसे आश्रय देकर बनवीर से दुश्मनी मोल लेना नहीं चाहता था।

- (v) प्रस्तुत गद्यांश हमें कर्तव्यपरायणता के लिए सर्वस्व त्याग की प्रेरणा देता है। किसी भी मनुष्य को कर्तव्य की रक्षा के लिए अपना या किसी प्रिय वस्तु का भी बलिदान देना पड़े तो दे देना चाहिए, लेकिन अपने कर्तव्य व वचन की रक्षा करनी चाहिए।

Answer 4.

- | | | | | | |
|-------------|---|--------------|--------|---|-------------|
| (i) दिन | — | दैनिक | माया | — | मायावी। |
| (ii) भाग्य | — | किस्मत, नसीब | पवित्र | — | पावन, शुद्ध |
| (iii) साकार | — | निराकार | क्षणिक | — | शाश्वत |
| विस्तृत | — | संकुचित | कीर्ति | — | अपकीर्ति |

- (iv) जहर का घूँट पीना—क्रोध को प्रकट न होने देना।

वाक्य—प्रतियोगिता में हुए पक्षपात को देखकर भी मैं शिष्टाचारवश जहर का घूँट पीकर रह गया।

नाक रख लेना—इज्जत बचा लेना।

वाक्य—मेरे मित्र ने मेरी बेटी के विवाह में आर्थिक सहायता करके मेरी नाक रख ली। अन्यथा न जाने क्या होता ?

- (v) एक — एकता उड़ना — उड़ान

- (vi) (a) घर जाने में मात्र चार दिन शेष हैं।

- (b) एक नवयुवक को यह बन्धन अच्छा नहीं लगा।

- (c) विद्यार्थी एक निबन्ध लिख रहे हैं।

Section B is not given due to change in the present syllabus.

QUESTIONS

(Two Hours)

Answers to this paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answer.

Attempt **all five** questions.

The intended marks for questions or parts of question are given in brackets [].

You are advised to spend not more than **30 minutes** in answering **Question 1** and **20 minutes** in answering **Question 2**.

Question 1.

[20]

(Do not spend more than 30 minutes on this question.)

Write a composition (300-350 words) on any one of the following:

(a) Write an **original** short story entitled 'The Secret'.

(b) 'A family without pets is an incomplete family'.

Express your views either **for** or **against** this statement.

(c) Which do you prefer—morning, afternoon, evening or night?

Describe your favourite time of the day. What are the sights, sounds, smells and feelings that you associate with your favourite time of the day? Why do you like this part of the day better than the others.

(d) Have you ever said or done something that changed the life of another person?

Give an account of your words or actions that led to this change and describe how the experience made you feel.

Question 3.

(a) Your school is organising a fete/carnival to raise funds for victims of the recent floods in your State.

Write a notice to be put up on the school notice board giving details of the event.

[5]

(b) Write an e-mail to the principal of a neighbouring school, inviting him/her to send their students to attend the fete/carnival.

[5]

Question 4.

Read the following passage carefully and answer the questions that follow:

Attending classes inside a railway carriage seemed unusual enough, but the seating arrangements turned out to be unusual too. At Totto-chan's previous school each pupil was **assigned** a specific desk. But here they could sit anywhere they liked at any time.

(e) Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 2.

(Do not spend more than 20 minutes on this question.)

Select **any one** of the following :

[10]

(a) You have changed your school recently. Write a letter to your friend in your old school telling him/her what you like about your new school but also what you miss about your old school.

(b) Some taps in your locality are left open all day resulting in a tremendous waste of water. Write a letter to the Municipal Commissioner of your town/city, complaining about the problem. Suggest ways in which this waste of water can be prevented.

The most unusual thing of all about this school, however, was the lessons themselves.

Schools normally schedule one subject, for example history, during the first period, when everyone in the class just did history; then say arithmetic in the second period, when you just did arithmetic. But here it was quite different. At the beginning of the first period, the teacher made a list of all the problems and questions in the subjects to be studied that day. Then she would say, "Now, start with any of these you like".

10

So, whether you started with history or arithmetic or something else didn't matter at all. Someone who liked composition might be writing something, while behind you someone who liked chemistry might be boiling something in a flask over an alcohol burner.

This method of teaching enabled the teachers to observe—as the children progressed to higher grades—what they were interested in as well as their way of thinking and their character. It was an *ideal* way for teachers to really get to know their pupils.

20

As for the pupils, they loved being able to start with their favourite subject, the fact that they had all day to cope with the subjects they disliked meant they could usually manage them somehow. So, study was mostly *independent*, with pupils free to go and consult the teacher whenever necessary. Then pupils would be given further exercises to work at alone. It was study in the truest sense of the word, and it meant there were no pupils just sitting inattentively while the teacher talked and explained.

The first-grade pupils hadn't quite reached the stage of independent study, but even they were allowed to start with any subject they wanted. Some copied letters of the alphabet, some drew pictures, some read books, and some even did physical exercises.

30

Just then the boy sitting behind her got up and walked towards the blackboard with this notebook, apparently to consult the teacher. Totto-chan stopped looking around the room and fixed her eyes on his back as he walked.

The boy dragged his leg, and his whole body swayed from side to side, Totto-chan wondered at first if he was doing it on purpose, but she soon realized the boy couldn't help it.

The boy said brightly, "My name's Yasuaki. What's yours?" She was so glad to hear him speak that she replied loudly, "I'm Totto-chan".

40

Adapted from Totto-chan

- (a) Give the meaning of the following words as used in the passage : [3]

One-word answers or short phrases will be accepted.

(i) assigned (line 3)

(ii) ideal (line 19)

(iii) independent (line 24)

- (b) Answer the following questions briefly in your own words.

(i) What was unusual about the seating arrangement? [2]

(ii) How did the method of teaching help the teacher? [2]

(iii) Why did the pupils enjoy their lessons at this school? [2]

(iv) What different things did the first-grade pupils do? [2]

(v) Which sentence in the passage tells us that the boy had difficulty in walking like other children? [1]

(c) In not more than 50 words, describe how the children were taught. [8]

Question 5.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage but write in correct serial order the word or phrase appropriate to the blank space. [4]

Example :

(0) taught

By the time she was three, Matilda had (0)
(teach) herself to read by (1) (study)
newspapers and magazines that (2) (lie)
around the house. At the age of four, she could (3)
..... (read) fast and well and she naturally began
(4) (hanker) after books. The only book in
the whole of this enlightened household was something
called Easy Cooking (5) (belong) to her
mother, and when she had read this from cover to cover
and had (6) (learn) all the recipes by heart,
she (7) (decide) she (8) (want)
something more interesting.

- (b) Fill in the blanks with appropriate words. [4]

(i) It has been raining two hours.

(ii) He just scraped his examination.

(iii) Mrs. Kapoor was bent attending the meeting.

(iv) She is proud and looks on her colleagues.

(v) Rahul plays football his grandfather.

(vi) The mother was sitting the sick child all night.

(vii) Monica is leaning the wall.

(viii) Rosie is very good art and craft.

- (c) Join the following sentences to make one complete sentence without using and, but or so: [4]

(i) Sarah and Tyra are twins. They look exactly alike.

(ii) Rohan does not like to play cricket. He does not like to play hockey either.

(iii) Sania pushed as hard as she could. The door would not open.

(iv) The school bus drove through the gate. The clock was striking eight at that moment.

- (d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence. [8]

(i) The librarian orders books for the school library every year.

(Begin: Books...)

(ii) No one will deny that the children have worked very hard this year.

(Begin: Everyone....)

(iii) As soon as the teacher enters, she is greeted by her students.

(Begin : No sooner.....)

(iv) She is so busy that she finds no time to entertain her friends.

(Rewrite using 'too')

(v) In spite of the very hot weather, Kevin stepped out to buy some bread.

(Begin : Despite....)

(vi) Sheela will be selected for the competition only if she goes for the auditions.

(Begin: Unless....)

(vii) I would rather eat fruit than a lot of unhealthy junk food.

(Begin: I prefer...)

(viii) The tree was cut down ruthlessly.

(Begin: They...)

ANSWERS**Answer 1.**

- (a) **THE SECRET**

It was a normal day in Mrs Ray's life. The clock struck twelve at noon and her house was looking as prim as it always did. The blankets were folded neatly, the bedsheets were crisp, the kitchen slab was nicely scrubbed to clean away the remnants of the morning breakfast, the plants were watered, the mats were dusted and the furniture was wiped.

Everything looked in order but the look on Mrs Ray's face contradicted the orderliness of the atmosphere. Something was disturbing her. And that was a delayed payment. She worked as a

translator for an organisation and did freelance work to utilise her time in a productive manner. But for this particular project, her expected payment was to be delayed due to shifting of the office premises. Or so she was told.

She was banking on this money to buy a watch for her husband's birthday that was in the following week. He had admired the watch from a distance on their last outing to the shopping mall and she had understood his desire to own it. But what was she to do now? She had really wanted to treasure the expression on his face when he wore it. When he came back home from work that day, he noted the grim expression on her face and asked her

about it. He was very calm about the situation and asked her to be patient about the money. He also reassured her that he wasn't expecting any gift from her and wanted only a quiet dinner.

These words touched her and now she was all the more determined to buy that gift for him. So, she decided to shell out the money she had been saving up for a gold bangle that she had liked. She thought it to be worth the sacrifice. Her husband was delighted to see the surprise and asked her where she had managed it from. 'It's a secret!' she replied with a smile.

(b) A FAMILY WITHOUT PETS IS AN INCOMPLETE FAMILY

(1) FOR THE MOTION

It is rightly said by James Cromwell that, 'Pets are humanizing. They remind us we have an obligation and responsibility to preserve and nurture and care for all life.'

First of all, keeping pets is a great antidote for loneliness. Pets instantly brighten up the atmosphere of the house. You take care of them like your own kids and with the same love and affection. No matter how low you feel or lonely you are, a pet will always be there for you. Whether you want to pour your heart out to them or tell them your secrets, you can be sure that you have a listener!

Secondly, pets can give you unconditional love and are always faithful in return. It has been proven that pets can help reduce stress and anxiety levels. Moreover, several studies have also revealed that people who tend to spend their time with pets are more likely to live longer than people who don't.

Moreover, a pet such as a dog can help you maintain the safety of your house. Dogs are known to help around with thieves and strangers coming in as they have sharp hearing and smelling senses. Also, activities related to pets like feeding, bathing, playing and cleaning are also good ways to exercise yourself and keep fit and active.

Surprisingly, having a pet can also help you make friends. The pet-owner communities both online and offline are huge and organise regular meetups. You can go to these with your pet and meet pet-owners who are like-minded. You can discuss pet care tips and other stuff. Having pets is an excellent way to initiate small talk, make lasting friendships and bond with different people.

Finally, they teach you important life skills such as responsibility, empathy, affection and practicality

as you nurture your pet through the years. So, a family is really incomplete without a pet.

(2) AGAINST THE MOTION

Having a pet such as a cat, dog, rabbit, bird or any other animal as a companion may seem like a wonderful idea at first but it comes with great responsibility.

There are many things that do not go in favour of this statement. First, keeping a pet comes at a cost. There are many expenses related to a pet. For instance, you have to feed it special food, take it to the vet regularly for check-ups and vaccinations, make a special place for it to sleep, eat, invest in a good collar and a coat for winters, get it trained by a trainer, etc. Also, as pets age, they are prone to developing medical conditions requiring additional vet visits, testing, medications and medical procedures, which can add up to considerable expense.

Secondly, pets bring a lot of additional responsibility with them. It is like practically raising a child. You need to feed them on time, play with them, make sure they sleep well, take them to the doctor if they are unwell, and ensure that they exercise enough. Also, you cannot leave them alone at home and go out for long periods of time, say on vacations as they may develop some infection or can even die being left unattended.

Thirdly, there is a lot of time commitment involved with pets. For instance, dogs need to be walked and cleaned up after; a cat needs its litter box cleaned and changed; and small animals, such as rabbits and hamsters, require regular housekeeping. In fact, small animals require additional care because their living spaces need regular cleaning and maintenance, such as removing all bedding and washing the cage. Fish tanks require regular water changes and water quality monitoring to ensure that fish live in a safe and healthy environment.

So, keeping a pet could be very inviting, but it's a very big decision. Remember that your family is complete without a pet too.

(c) DUSK—MY FAVOURITE TIME OF THE DAY

Nicholas Sparks has poetically captured my favourite part of the day, dusk, by saying that, "Dusk is just an illusion because the sun is either above the horizon or below it. And that means that day and night are linked in a way that few things are; there cannot be one without the other, yet they cannot exist at the same time."

Dusk is a very special part of my day. I love how it paints the sky in vibrant hues – fiery orange with

blue tones on some days, sometimes royal pinks, sometimes fierce purples and also sometimes inky shades of blue spread all over. There is something special about the sky during that hour of the day as it bids adieu to the Sun and says hello to the Moon.

The flowers still linger on their fragrances as they are watered during this time. The wet soil emits a wonderful smell of its own, uplifting the mood of all and sundry.

The weather too is pleasant and amiable at this time of the day. It is not too hot as it is when the sun is shining bright in the afternoon and neither is it chilly cold like it is during winter nights. I feel very calm and relaxed at this time of the day.

I usually like to spend this time on my balcony, gazing at the sky and journaling while sipping coffee. This time of the day triggers my brain in a positive manner and gets my creative juices flowing. I usually spend this time of the day alone and write what I feel. It helps me vent out my stress, clear my head and compose myself for the tasks ahead. This 'me time' of the day is very important for me and I like to spend it fruitfully.

(d) A LIFE CHANGING EFFORT

Khalil Gibran has famously said that, 'The smallest act of kindness is worth more than the greatest intention.'

I understood the real meaning of this statement last week. My friend, Raj, was diagnosed with a severe bout of chickenpox and was missing from the school for a good whole week. The poor thing was weak, frail and had very limited energy due to the dose of antibiotics that he was on. I was missing his presence tremendously in class that week. We literally spent all our time in school together. We sat together, ate together, played together and even did our classwork together.

Every day, I would ritualistically call him after coming back home from school to update him on all that had happened during the day. We were a group of three friends, Raj, Rahul, and I. We would connect on a conference call sometimes. Today was one of those days as we three had been assigned a science project which we had to work on together. After we discussed, it was my idea to help Raj by sending him the relevant links to help him understand the concept and to type some portion of the assignment using the reference material. On the other hand, Rahul had the greatest intentions about Raj. He would talk about him every day and it was clear that he missed him. But of what use was all this concern? When Raj re-joined school after 10 days, he was

beaming and had the project assignment in his hands. He had used all the links that I had sent to him and completed his assignment on time and escaped the teacher's scolding too. He was really appreciative and thankful to me for my help. This was when I realised that a small act of kindness can really bring a difference to a person's life and it is even more important than having good intentions sometimes.

(e) NAIVE INTENTION

The picture shows exactly what is wrong with society these days. The 'selfie' culture has taken on everyone's minds and people are becoming more and more addicted to the craze of self-publicity on social media by way of posting selfies and check-ins. This concept is problematic especially for young minds as they can get deeply influenced by this kind of negative culture.

In the picture, we can clearly see this in little kids who perhaps cannot even afford a cell phone or are mimicking their elders and posing, for a selfie as a game. The innocence in the eyes and the way that they are smiling and posing, speaks volumes about their naïve intentions as they have converted posing and getting clicked to a mere game play. Perhaps the children are of the opinion that they are in their imaginary world and the slipper is actually a camera. This is very typical of children in that age. They constantly live in worlds of their own to escape their reality.

The cell phone is replaced by a slipper and is enough to evoke sympathy in the eyes of the viewer on the one hand as we are forced to think that the children are creating their own happiness in absence of having the means to afford a real phone. The picture also ignites deep thought on the other hand as we are forced to think about the kind of upbringing and education we are imparting to the future generations. Are we teaching them only to be self-absorbed and rely on social media and materialistic things for their happiness?

On a lighter note, the warm smiles of the children in the picture state their innocence clearly and remind us of the simple joys in life.

Answer 2.

(a) B-1/404, Green Avenue
New Delhi – 110090
3rd February, 20XX

Dear Reena,

Hope this letter finds you well. You will be happy to know that I am comfortably settled in my new

school. Although, I terribly miss you and our school as well.

My new school is really big. It has a sports arena, a swimming pool, two auditoriums and a big garden. We even have a solar water heating unit and lots of green plants around. The school offers plenty of exciting activities such as sports, art, music, drama and debate. I want to participate in tennis and painting. Wish you were here, and we could do it together, like old times! Anyway, I have made new friends and they both are locals from this town. We go cycling in the evenings together. The teachers are really nice and have welcomed me into their class warmly. My friends and teachers are helping me catch up with my studies and by the end of this month I hope to be at par with the rest of my classmates. The best thing about the school is that it fosters a positive learning environment and makes us learn by the practical way instead of simply rote learning to clear exams.

I really miss you and my old school. I can never forget our morning assembly gatherings and daily words of wisdom from our Principal. But my most cherished memory stays to be stealing lunch from your tiffin during break time!

Please keep writing to me so that we can discuss everything that happens in our lives.

Yours lovingly,
Priya

(b) Flat 22, Block E
Sitaram Apartments
Rajpur Road,
New Delhi

3rd February, 20XX

The Municipal Commissioner
Modern Town,
New Delhi

Dear Sir,

This is to bring to your attention the problem of water wastage in our colony. Recently, I noticed that a lot of water is being consumed rather than wasted in our colony since the past few days. This is because some common taps in the locality are left open throughout the day and are left unattended.

This causes a lot of freshwater to be wasted. We all must be sensitive to the problem of water wastage as water is a precious resource. Everyone across the globe is talking about the issue of water conservation as it is critical for the environment.

So, as world citizens, we must treat the issue of water conservation with respect and follow some simple steps in this direction. I would recommend that the common taps in the locality are monitored for usage by the staff to avoid wastage. Also, each resident should be encouraged to reuse the water used to wash vegetables and pulses to water their plants, take shorter showers, use a bucket and mug instead of a pipe, check their toilets for leaks, harvest rainwater and use a high efficiency washing machine.

I request you to take the necessary steps in this regard and help initiate a water conservation drive in our locality so as to ensure that all residents are alerted to this issue and act accordingly.

Thanking you,
Your faithfully,
Rita Joshi

Answer 3.

(a)

HANDOUT TO SUPPORT

The Fundraising Carnival for Flood Victims

Date: 8th February 20XX

Time: 9.00 a.m. to 5.00 p.m.

Venue: The Big Field, St. Louis School

The carnival schedule is as follows:

- Speech by the principal followed by the lighting of the lamp.
- Pre-lunch activities such as a treasure hunt, mini golf, bowling, karaoke, etc.
- Science exhibition, painting and other art pieces exhibition.
- Lunch around 1 pm.
- Post-lunch arrangement for drama and dance performances.

All pupils from Classes IV to XII who wish to participate are to give their names to Mrs. Charu Shankar on or before 1st February 20XX. The entry tickets will be ₹ 100/- per person. All collections from this event shall go to the flood victims in the state.

(b)

principalbluebellschool@gmail.com

A charitable carnival for victims of recent floods.

Dear Sir,

St. Louis School is organising a fundraising carnival for the victims of recent floods. Therefore I write to you to invite the students of your school to attend the carnival, going to be held on

Saturday, 7th February 20XX from 9:00 a.m. to 5 p.m. at the Big Field, St. Louis School.

The schedule for the day would start with a speech by the principal followed by the lighting of the lamp. Then, we have arranged for pre-lunch activities such as ring toss, a treasure hunt, mini golf, bowling, karaoke, face painting and many other exciting activities for students as well as teachers and parents. We also have an exhibition put up by the students of their Science models, paintings, coursework and other art pieces.

Then at around 1 pm we would proceed for lunch. We have a pre-set selection of healthy yet delicious food items.

Post-lunch we have arranged for a drama and some dance performances.

The day will end with multiple photos on our very special photo booth so that we all are able to preserve these happy memories forever.

I hope that you will accept this invitation and allow the students of your school to participate in the event wholeheartedly. We look forward to welcoming them.

Thanking you,
Yours faithfully,
Alia Kapoor

Secretary, Student Council, St. Louis School

Answer 4.

- (a) (i) to give a particular job or piece of work to someone.
(ii) perfect or best possible.
(iii) not influenced or controlled in any way by other people, events or things.
- (b) (i) The seating arrangement was unusual because first it was inside a railway carriage and second because the students were allowed to sit anywhere they liked at any time.
(ii) The method of teaching enabled the teacher to observe the interest of each student as well as gave the teacher more insight into their characters and thought processes.
(iii) The pupils enjoyed their lessons at this school because they could start their day with what they liked. Also, they studied independently and could approach their teachers whenever needed.
(iv) The first grade pupils were involved in multiple activities. Some of them copied letters of

the alphabet, some got busy in making drawings, some read books, while some even did physical exercises.

(v) The statement which tells us that the boy had difficulty in walking is:

"The boy dragged his leg, and his whole body swayed from side to side."

- (c) The students were taught innovatively. The teacher started by making a list of all subject problems. The pupils could begin their day with any subject and cope up with the remaining subjects later. They studied independently and could reach the teacher anytime in case of doubts. Further exercises were given as homework.

(52 words)

Answer 5.

- | | |
|---|---------------|
| (a) (1) studying | (2) lay |
| (3) read | (4) hankering |
| (5) belonging | (6) learnt |
| (7) decided | (8) wanted |
| (b) (i) for | (ii) through |
| (iii) on | (iv) down |
| (v) with | (vi) beside |
| (vii) against | (viii) at |
| (c) (i) Sarah and Tyra are twins who look exactly alike. | |
| (ii) Rohan neither likes to play cricket nor hockey. | |
| (iii) Although Sania pushed as hard as she could, the door would not open. | |
| (iv) When the school bus drove through the gate, the clock was striking eight at that moment. | |
| (d) (i) Books are ordered for the library every year by the librarian. | |
| (ii) Everyone would agree that the children have worked very hard this year. | |
| (iii) No sooner than the teacher enters, she is greeted by her students. | |
| (iv) She is too busy to find time to entertain friends. | |
| (v) Despite the very hot weather, Kevin stepped out to buy some bread. | |
| (vi) Unless Sheela goes for the auditions, she will not be selected for the competition. | |
| (vii) I prefer eating fruit than a lot of unhealthy junk food. | |
| (viii) They ruthlessly cut down the tree. | |



QUESTIONS

Question 1.

[20]

Write a composition (300-350 words) on any one of the following :

- Write an **original** short story in which two children and their Grandfather are the main characters.
- Closed Circuit Television (CCTV) must be installed in every classroom. Give your views either **for** or **against** this statement.
- Your class had to conduct a Morning Assembly. Write an account of how you prepared for it, what your role was and what you gained from the experience.
- Summers are becoming hotter with each passing year. Write a description of one such very hot day. What did you see and hear as you walked outside ? How were birds and animals affected ?
- Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 4.

Read the following passage carefully and answer the questions that follow :

Billy Weaver had travelled down from London and by the time he arrived it was nine o'clock in the night and the moon was coming up.

"Excuse me," he asked a porter. "but is there a cheap hotel nearby?"

"Try The Bell Hotel," the porter answered, pointing down the road.

Billy thanked him, picked up his suitcase and set out to walk the distance to The Bell Hotel. He had never been to Richmond before. But the man at the Office had told him it was a *splendid* city.

Billy was seventeen years old. He was wearing a new navy-blue overcoat, a new brown hat, and a new brown suit, and he was feeling fine. He walked briskly down the street. He was trying to do everything briskly these days. The big shots up at the Head Office were fantastically brisk all the time. They were amazing.

Question 2.

(Do not spend more than 20 minutes on this question)

Select **any one** of the following :

[10]

- You want to start a new club in your school.

Write a letter to your Principal requesting permission to start the club, explain your role in it and give reasons to prove that the club will be beneficial for the school.

- Your friend has not fared well in the recent examinations. Write a letter to him/her expressing your concern. Give him / her some advice on how to score better marks and offer to help him/her to improve his / her performance.

Question 3.

- Your school is hosting an Inter-School Quiz Competition.

Write out a notice to be displayed in your school giving all details for the event.

[5]

- Write an e-mail to the Principal of a neighbouring school requesting him/ her to send a team of three members to participate in the Quiz Competition.

[5]

The road was lonely and dark with a few scattered houses.

Suddenly, in a downstairs window Billy saw a printed notice propped up against the window glass. It said Bed and Breakfast.

He moved a bit closer and peered through the window into the room, and the first thing he saw was a bright fire burning in the hearth. On the carpet in front of the fire, a little dog was curled up asleep with its nose tucked into its belly. The room in half-darkness was filled with pleasant furniture. There was a piano and big sofa and several plump armchairs; and in one corner he *spotted* a large parrot in a cage. Animals were usually a good sign in a place like this, Billy told himself and it looked to him as though it would be a pretty decent house to stay in.

20

Then a queer thing happened to him. He was in the act of stepping back and going away from the window when he felt a strange urge to ring the bell!

He pressed the bell. He heard it ringing, and then at once the door swung open and a woman was standing there.

She gave him a warm welcoming smile.

"Please come in," she said pleasantly. Billy found himself *automatically* moving forward into the house.

30

"I saw the notice in the window," he said, holding himself back.

"Yes, I know."

"I was wondering about a room."

"It's all ready for you, my dear," she said. She had a round pink face and very gentle blue eyes.

"How much do you charge?"

"Five dollars a night, including breakfast."

It was fantastically cheap. He could easily afford it.

- (a) Give the meaning of the following words as used in the passage.

One-word answers or short phrases will be accepted.

(i) splendid (line 7)

(ii) spotted (line 20)

(iii) automatically (line 29) [3]

- (b) Answer the following questions briefly in your own words :

(i) How did the porter assist Billy ? [2]

(ii) Why did Billy want to everything briskly ? [2]

(iii) Why did Billy think animals were a good sign in a place like this ? [2]

(iv) Which sentence tells you that something strange happened to Billy ? [2]

(v) How much did the room cost ? [1]

- (c) In not more than 50 words, give a brief account of what Billy saw as he looked through the window of the room. [8]

Question 5.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space. [4]

Example :

(0) roamed

Once upon a time in the days when genies and giants (0) (roam) the land, there (1) (live) a farmer (2).....(name) Baba Ayub. He lived with his family in a little village by the name Maidan Sabz. Because he had a large family to feed, Baba Ayub (3)..... (see) his days (4) (consume) by hard work. Every day, he (5) (labour) from dawn to sundown, (6) (plow) his field and (7) (turn) the soil and (8) (tend) to his meagre pistachio trees.

- (b) Fill in each blank with an appropriate word : [4]

(i) The puppy was hiding the sofa.

(ii) Stop worrying your future.

(iii) When I stepped the lift, I found it had stopped working.

(iv) We had to use a bridge to go the river.

(v) I have lived in this town ten years.

(vi) Please switch..... all lights and fans when you leave the room.

(vii) Ronnie is married my cousin.

(viii) The gift came a birthday card.

(c) Join the following sentences to make one complete sentence **without using and, but or so** : [4]

(i) He was very ill. He did not take any medicine.

(ii) You come back from your holiday. We will discuss the problem.

(iii) He remained absent on Friday. It was foolish of him.

(iv) Rahul ran all the way to the bus stop. He missed the bus.

(d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence. [8]

(i) The old woman said to Arun, "Can you help me to cross the street?"

(Begin : The old woman asked Arun)

(ii) As soon as the sun rose over the hills, the fog disappeared.

(Begin : No sooner)

(iii) It rained so heavily that they could not go for the picnic.

(Rewrite : Using 'too to')

(iv) If your friends get here before 7 o'clock we can take them out for dinner.

(Rewrite : Using 'unless'.)

(v) The school captain was elected by the students of classes XI and XII.

(Begin : The students)

(vi) Greenland is the largest island in the world.

(Begin : Using 'larger'.)

(vii) How cruel Shylock was to demand his pound of flesh!

(Begin : It was cruel)

(viii) Arun was asked by his mother to explain the missing buttons on his shirt.

(Rewrite : Using 'explanation')

ANSWERS

Answer 1.

(a)

INSPIRATION

On a bright Sunday afternoon, my little sister Khushi and I were playing in the garden. "Please stop, Rahul! I am tired of running now. Let us go inside and have something to eat", said Khushi. I agreed with her and we went inside the house to have our favourite drink, *Aam Panna*.

The temperature during summer touched new heights every year in Amravati. Our grandfather was delighted to welcome us to his house there during the summer vacation and we had made it a ritual to visit him every year in Amravati.

That afternoon, when we were relishing our delicious *Aam Panna*, grandfather called out to us, "Hey kids! Please come here once you are done. I need to show you something". We immediately gulped down the rest of the drink and went running to him.

His room resembled to the ones designed in ancient India, where the huge bed occupied major portion of the room, there were niches in the wall and the ceiling laid low. Being an ex-army officer, his room was very neat and tidy. Every object was in its perfect place.

As we approached our grandfather, whom we called Naanu, we saw him sitting on the bed with an opened box. It was the trunk that he used to carry to his camp during the service. Naanu asked us to sit and started taking out objects from the box. We watched him with amazement.

He began telling us the importance of the army uniform. How the colour, the fabric and the design of the uniform speaks loudly of our nation's strength, prestige and courage. He showed us the photos of his friends from the army and told us how all of them fought for the nation's pride and only three of them survived the battle.

As Naanu spoke, we could see different emotions in his eyes. As Naanu concluded, we ran up to him and gave him a tight hug. Khushi said, "We are so proud of you Naanu!". I said, "Even I want to be like you one day. Serve the nation and die for it!" Naanu with teary eyes said, "Youth like you are the building pillars of India. I am sure you will take us forward, towards a better future. I am really happy to see the spirit within you".

(b) CLOSED CIRCUIT TELEVISION (CCTV) MUST BE INSTALLED IN EVERY CLASSROOM

(1) FOR THE MOTION

CCTV serves as a helpful medium to observe the movement and activities of the people wherever it is installed. Taking increased number of accidents and mishappenings into consideration, CCTV installation is essential in public places and areas sensitive for children and women. It not only gives the citizens, a sense of protection but also helps to prevent crimes and catch the criminals otherwise.

Installation of CCTV should be mandatory in every classroom not only from the security

point of view but it will also help to monitor the activities of the students as well as the teachers during the lectures, breaks and otherwise. Any kind of mishap can be easily monitored and prevented by CCTV surveillance.

CCTV will help to monitor any malpractices or misbehaviour carried out during the classroom lectures by the students. It will prevent malpractices during examinations and theft of any kind. Students will be aware of being monitored and hence will follow discipline even in the absence of a teacher in the classroom. It will help to identify the cause behind any kind of accidents in the classroom.

Unacceptable behaviours such as bullying and intimidation can also be prevented under CCTV surveillance. False accusations, fake pretensions and other such incidents can also be avoided. Students shall be under safe, protected and comfortable environment, if CCTV is installed in classrooms.

Misbehaviour of the staff members with the students, undesirable gestures and child abuse of any kind can be easily prevented. Observation of lectures, body language of the staff members and child behaviour can be monitored. Classroom management and planning can be done with the help of CCTV footage. This will also help to develop a sense of security amongst the parents.

(2) AGAINST THE MOTION

A waste of resources and energy, CCTV is an inessential component in the school classroom. It shall pose a serious threat towards the trust, privacy and performance of the teachers and students.

CCTV installation in the classroom will be an infringement of both the teacher's and student's privacy. An unintentional act can prove to be an embarrassment before the school management and it shall also affect the psychology of the child. A clear message of lack of trust will be sent between the principal, teachers and students, if CCTV installation is carried out in the classroom. An unnecessary fear may develop within the teachers and the students before entering the classroom.

Parents who are picky may tend to get pickier due to CCTV installation and may demand to see the footage often. This shall cause an unnecessary waste of time of both the parties.

Constant monitoring may affect the performance of the students and the flow of the lectures. The teachers also may feel cautious and may not be able to deliver their best in the class.

CCTV installation may encourage bad behaviour of students due to constant monitoring for it is said that forbidden fruits taste the sweetest. They may practise this in areas that do not cover the CCTV observation. This completely defeats the purpose of the device and may reap detrimental effects.

Nevertheless, CCTV footage cannot be considered as the ultimate observation of a classroom. Technical glitches and lack of clarity may reflect a different image than the reality. It also fails to cover the dimensions such as force or pressure by which a person comes in contact with the other person or object in case of accidents or feuds. If a case arises to measure these, CCTV shall fail the test.

CCTV installation is a futile attempt to monitor classroom activities. However, installing them in corridors and staircase of the school can be considered as an optional remedy for security reasons.

(c) A TRIBUTE TO OUR REAL HEROES

This Monday morning at school was not an ordinary Monday morning. A plethora of emotions were arising within me including nervousness, anxiety, excitement and everything else because it was the turn of our class, class X – B to conduct the morning assembly. Being the monitor of the class, I had to choose students as well as make arrangements and execute practises. After discussing with my classmates, we decided to perform a small but special act to pay tribute to the martyrs who sacrificed their lives protecting their nation.

I decided to make a choir group of five students to sing the famous song '*Aey mere watan ke logo*'. Further, five boys will be dressed as soldiers and will be shown leaving their homes while girls will be acting as mothers, sisters or wives of the soldiers sending them to the border with teary eyes. They will bravely fight and get shot, creating an environment of mixed feelings, both sorrow and pride.

I took the responsibility of narrating the act. After extensive practice, we were finally ready. On Monday, as the clock struck 07:45 a.m., all the students started gathering in the assembly hall. The morning prayer ended and we were called for our performance. The choir group gave a mellifluous performance whereas the theatrical act engaged the attention of one and all. As I began my narration, the entire school went into silence and I could see the visualisation of my words in their eyes. Stories of brave soldiers and

their families, their sacrifices and courage gave gooseflesh to one and all. As I concluded, the entire school shouted, '*Jai Hind! Bharat Mata ki Jai!*'. Our Principal, all the teachers and students complimented us for our efforts.

Working as a team, planning things proactively aiming to achieve the common goal within a given time frame was the key behind the grand success of our act. We all understood the true essence of leadership skills, team-work and time management only after this act. Since the theme of the play was Patriotism, the skit also made everyone remember their duties and responsibilities towards the Nation. I'll forever treasure this experience because the traits we've learnt, together as a team, while preparing and executing this play are extremely important and will play a vital role in developing our interpersonal skills making us more competent to face challenges of real life.

(d) A HOT SUMMER AFTERNOON

I called for another glass of chilled water as I wiped the sweat from my forehead. Summer that year felt quite rageful. The temperature was oscillating between 45°C–50°C. Even the air conditioner inside our rooms could not provide any relief. Life for us had truly become difficult in Ahmedabad. My mother made sure to keep us hydrated by making us drink lemonade and water regularly.

Mornings weren't pleasant enough and evenings became enjoyable only hours after sunset. Sun was shining to its brightest and the heatwave had trapped the land and water alike. As I was walking through the shade of the trees in our verandah, trying to enjoy the shadow, my eyes got stuck on the ground where I saw a little bird. It was lying on the ground with minimal movements. I understood its plight and rushed inside the house to fetch a bowl of water.

I lifted the bird and held its beak near the water. The poor bird tried to drink water but to no avail. It died within a few minutes in my hands. I could not hold back my tears and broke down. After some time, I dug a pit nearby and buried the bird there.

As I walked back to the house, the thought struck me, "If this poor little bird died due to lack of water in this scorching heat, what about others?" I looked around at the dryness, a mosaic of broken ground was created under my shadow, and relief was nowhere to be found.

I promised myself that no animal shall henceforth suffer the same fate as the bird did. I went to the

terrace, got an earthen pot, filled it with water and placed it on the parapet of the roof. Soon crows and pigeons started coming and drinking water from it. I used the same idea and put an earthen pot outside the compound wall of my house wherein dogs, cats and cattle could come and quench their thirst.

After that day till date, I make sure to keep the earthen pots filled with water so that no animal or bird suffers due to lack of water. The tragic death of that little bird changed my perspective and approach towards animals forever.

(e) A HEALTHY MIND RESIDES IN A HEALTHY BODY

I was walking back to my home from my office, when I saw a group of very young students gathered near the local confectionary store, buying something. They were from the nearby school. Few of them were buying chocolates, few were buying some chips while few were engrossed in thinking about what to buy. They were no more than 7-8 years old. I walked past them and continued my journey.

On the way, I began contemplating the view I just witnessed. I thought about who gave them the money to buy chocolates? Why were they alone and not supervised by their parents? What if the shopkeeper conned them? What if they fell sick after eating something unhealthy and why was such junk and unhealthy food so important and apparently delicious for them?

Kids should be well educated by elders on how to manage money and put it to best use. They should be also be taught about health and hygiene and how they should avoid eating outside. Parents should be vigilant enough not to give unnecessary cash to the kids because it may lead them into harmful indulgence. Also, a clear understanding of importance of healthy food and balanced diet should be given to the kids so that they avoid eating unhealthy food outside.

This does not suffice the issue. It is also very unsafe to allow kids to shop alone from unknown shops. Taking into consideration the growing crime rates against children, kids should be strictly warned to return home immediately after school and accompany an adult if something essential needs to be purchased.

I had already reached the gate of my building by the time I finished thinking about it. As I entered my building, I heard some chattering behind me. I turned around and saw the same kids walking along the road. They were returning to their

homes. They were enjoying their cups of ice-cream as they walked and teased each other. I took a sigh of relief after seeing all of them happy, safe and together. However, the fear of them falling sick due to unhealthy diet had still not left my mind.

Answer 2.

(a)

15, Kushal Paradise,
Magadi Road,
Bengaluru
22nd February, 20XX

The Principal,
St. John's School,
Wilson Garden,
Bengaluru

Dear Sir,

I write on behalf of all the students of class X-B to seek your kind permission to start a 'Consumer Club' in our school. With a vision to create awareness about Consumer Rights, Consumer Forum and Consumer Activities within the society, we wish to take the initiative of beginning this club in our school.

As the prospective President of the Consumer Club, I assure you that the activities shall aid in improving the knowledge of individuals about consumer rights, responsibilities, various laws related to consumer protection and the methods to protect themselves from market manipulations. A few proposed activities are quizzes, competitions-both written and activity type, seminar, conferences etc.

Kindly permit us to begin the club in the school from the last Friday of the month i.e. 28th February 20XX. The club shall carry out its activities on every Saturday of the week from 10:00 a.m. to 4:00 p.m.

Please consider my request.

Yours faithfully,
Divya Pawar

(b)

10, Shanti Kunj,
Pathardi Road,
Lucknow.
12th January, 20XX

Dear Karishma,

Hope this letter finds you in the best of your health and spirits. I got to know about your results and I'm really concerned.

I heard that you could not perform your best in the recent examinations. But, it is completely alright and you need not to lose hope. You are definitely a very talented girl and with a little focus and concentration you will be able to pass the examinations with flying colours.

You can get up early in the morning instead of late-night studies as early morning is the best time to study. I suggest you to revise the concepts and practise math regularly. Also, I've made notes on some topics, I'll share them with you. However, if you face difficulty in understanding any topic, please feel free to write to me. I shall be more than happy to help you.

All the best for the upcoming examinations. I know you will make us all proud.

Your loving friend,
Deepak Raj.

Answer 3.

(a)

YOUNG CHANAKYA

Inter-school Quiz Competition
on 10th March 20XX

from 10:00 a.m. to 3:00 p.m.

at Auditorium, St. Francis High School

All the students from Classes VI to X who
wish to participate are to give their names to
Mr. Thomas on or before 1st March 20XX.

(b)

principal.globalschool@gmail.com

Inter-school Quiz Competition

Dear Sir,

Our school is celebrating its Silver Jubilee this year. As a part of the celebrations, we are hosting a series of competitions beginning with 'Young Chanakya', the Inter-school Quiz competition.

It will be held on 10th August 20XX from 10:00 a.m. to 3:00 p.m. in the auditorium of St. Francis High School.

Please do send a team of three members from Class IX/Class X of your school to participate in the competition.

The quiz will be based on Current affairs, Indian history, Indian Geography and General knowledge.

We look forward to enthusiastic participation from your school in the competition.

Thanking you,

Yours faithfully,

Meghna Roy

Academic Coordinator

Answer 4.

- (a) (i) very impressive, magnificent
(ii) found, noticed
(iii) involuntarily

(b) (i) The porter suggested Billy to try 'The Bell Hotel' when he asked him about cheap hotels in the locality.

(ii) The senior officers of the Head Office where Billy worked were fantastically brisk all the time. They were amazing in their work. This influenced Billy to do everything briskly.

(iii) Animals were a good sign in a place like that because it showed the compassionate and loving attitude of the owners of the place.

(iv) The sentence that tells us, something strange happened to him is "*Then a queer thing happened to him*".

(v) The room costed only five dollars a night including the breakfast.

(c) As Billy looked through the window, he saw a bright fire burning in the hearth. A dog was sleeping on the carpet in front. The room was half dark with pleasant furniture including a piano, a big sofa and plump-sized armchairs. He also spotted a large parrot in a cage. **(50 words)**

Answer 5.

- (a) (1) lived
(3) saw
(5) laboured
(7) turning

- (2) named
(4) consumed
(6) ploughing
(8) tending

- (b) (i) underneath/ under (ii) about
(iii) into (iv) across
(v) for (vi) off
(vii) to (viii) with

(c) (i) In spite of being very ill, he did not take any medicine.

(ii) We will discuss the problem once you come back from your holiday.

(iii) It was foolish of him to remain absent on Friday.

(iv) Although Rahul ran all the way to the bus stop, he missed the bus.

(d) (i) The old woman asked Arun whether he could help her to cross the street.

(ii) No sooner did the sun rise over the hills than the fog disappeared.

(iii) It rained too heavily for them to go to the picnic.

(iv) We can not take your friends out for dinner unless they get here by 7 o'clock.

(v) The students of classes XI and XII elected the school captain.

(vi) No other island in the world is larger than Greenland.

(vii) It was cruel of Shylock to demand his pound of flesh.

(viii) Arun was asked for an explanation by his mother about the missing buttons on his shirt.

●●

GURUKUL

QUESTIONS

Question 1.

[25]

Write a composition (350-400 words) on any one of the following :

- (a) Write an original short story entitled 'The Gift'.
- (b) "Money is important for happiness." Express your views either **for** or **against** this statement.
- (c) Narrate an incident from your own experience when you helped to prepare a meal. Explain what you did and what you gained from the experience.
- (d) You had been waiting outside the examination hall. Describe what you saw and the sounds you heard when you arrived at the place. What were your feelings? Describe how the scene changed once you entered the hall and the examination started.
- (e) Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 2.

Select **any one** of the following :

[10]

- (a) Your uncle has offered to get you a pet for your birthday. Write a letter to him telling him what you would like, give reasons for your choice and tell him how you would take care of your pet.
- (b) The traffic outside your school is very heavy and chaotic.

Write a letter to the Deputy Commissioner of Police (Traffic) pointing out the danger of such heavy and chaotic traffic in a school zone. Suggest possible solutions for the problem.

Question 3.

Read the following passage carefully and answer the questions that follow :

Granny knew I'd been in the train for two nights, and she had a huge breakfast ready for me.

Later she told me there'd been a letter from Uncle Ken.

"He says he's the manager in Firpo's hotel in Simla," she said. "The salary is very good. It's steady job and I hope he keeps it."

There days later Uncle Ken was on the veranda steps with his bedding roll and **battered** suitcase.

'Have you given up the hotel job ?' asked Granny.

'No,' said Uncle Ken. 'They have closed down.'

'I hope it wasn't because of you.'

'No, Aunt Ellen. The bigger hotels in the hill stations are closing down.'

'Well, never mind. Come along and have your lunch.'

Over lunch, Uncle Ken talked very seriously about ways and means of earning a living.

'There is only one taxi in the whole of Dehra,' he **mused**. 'Surely there is business for another ?'

'I'm sure there is,' said Granny. 'But where does it get you ? In the first place, you don't have a taxi. And in the second place, you can't drive.'

'I can soon learn. There's a driving school in town. And I can use Uncle's old car.'

'I don't think it will run now,' said Granny.

'Of course, it will. It just needs some oiling and greasing and a spot of paint.'

'All right, learn to drive.'

10

20

so, Uncle Ken joined the driving school.

After a month Uncle Ken announced that he could drive and that he was taking the car out for a trial run.

'You haven't got your license yet,' said Granny.

'Oh, I won't take it far,' said Uncle Ken. 'Just down the road and back again.'

He spent all morning cleaning up the car. Granny gave him money for a can of petrol.

After tea, Uncle Ken said, 'Come along, Ruskin, hop in and I will give you a ride. Bring Mohan along too.' Mohan and I needed no urging. We got into the car beside Uncle Ken.

'Now don't go too fast, Ken,' said Granny anxiously. 'You are not used to the car as yet.'

Uncle Ken nodded and smiled and gave two sharp toots on the horn. He was feeling pleased with himself.

Driving through the gate, he nearly ran over a cat.

Miss Kellner, coming out for her evening rickshaw ride, saw Uncle Ken at the wheel of the car and ran indoors again.

Uncle Ken drove straight and fast, tootling the horn without a break.

At the end of the road there was a roundabout.

'We'll turn here,' said Uncle Ken, 'and then drive back again.'

He turned the steering wheel, we began going round the roundabout, but the steering wheel wouldn't turn all the way, not as much as Uncle Ken would have liked it to... So, instead he went on—and straight through the Maharaja of Jetpur's garden wall.

It was a single-brick wall, and the car knocked it down and *emerged* on the other side without any damage to the car or any of its occupants. Uncle Ken brought it to a halt in the middle of the Maharaja's lawn.

Running across the grass came the Maharaja himself. When he saw that it was Uncle Ken at the wheel, the Maharaja beamed with pleasure.

'Delighted to see you, old chap!' he exclaimed. 'Jolly decent of you to drop in again. How about a game of tennis?'

- (a) Give the meaning of the following words as used in the passage.

One word answers or short phrases will be accepted.

(i) battered (line 6)

(ii) mused (line 14)

(iii) emerged (line 42) [3]

- (b) Answer the following questions briefly in your own words :

(i) Why did Granny hope Uncle Ken would keep his job at Firpo's hotel? [2]

(ii) When Uncle Ken arrived with his luggage, Granny remarked that she hoped the hotel had not closed down because of him. What does this remark tell you about Uncle Ken? [2]

(iii) Why did Uncle Ken think, that driving a taxi in Dehra would be profitable? [2]

(iv) Which sentence tells you that the narrator and his friend were waiting to be invited for a drive in a car? [2]

(v) Why did Miss Kellner run indoors when she saw Uncle Ken at the wheel of the car? [2]

(vi) What was Uncle Ken's intention at the roundabout? [2]

(c) (i) In not more than 60 words, describe what happened after the car went through the wall. [8]

(ii) Give a title to your summary in 3(c)(i). Give a reason to justify your choice of the title. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

(0) beginning

Alice was (0) _____ (begin) to get very tired of (1) _____ (sit) by her sister on the bank and of having nothing to do : once or twice she had (2) _____ (peep) into the book her sister was reading, but it (3) _____ (have) no pictures or conversations in it, "and what is the use of a book," (4) _____ (think) Alice, "without pictures or conversations?"

Alice wondered whether the pleasure of (5) _____ (make) a daisy-chain would be worth the trouble of

getting up and picking the daisies, when suddenly a White Rabbit with pink eyes (6) _____ (run) close by her. Alice did not think this was very remarkable, until the Rabbit actually (7) _____ (take) a watch out of its waistcoat-pocket, and (8) _____ (look) at it, and then hurried on. [4]

(b) Fill in each blank with an appropriate word :

(i) The poet's mother was stung _____ a scorpion.

(ii) "Please write _____ what I tell you otherwise you will forget," the teacher said.

(iii) The dog was hiding _____ the bed, barking at the stranger.

(iv) Sheila's grandmother found it difficult to climb _____ the steep staircase.

(v) The soldier fought bravely _____ his country.

(vi) There is no use crying _____ spilt milk.

(vii) I don't know what they were arguing _____ but I could hear angry voices.

(viii) The school playground is out _____ bounds for the pupils of the primary school. [4]

(c) Join the following sentences to make one complete sentence without using *and*, *but* or *so*.

(i) They have to go to bed early every night. They are allowed to stay up late on Saturdays.

(ii) The children were delighted. The exams had been cancelled.

(iii) We are not allowed to play in the sun. We are not allowed to play in the rain.

(iv) This is the place. The dog was rescued from its cruel owner. [4]

(d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence. [8]

(i) She laid the table after she had finished the cooking. (Begin : When.....)

(ii) He is old but still he works hard. (Begin : Despite)

(iii) The delivery boy was requested to bring the parcel the next day.

(Rewrite using direct speech)

(iv) I prefer playing a game to watching television. (Begin : I would rather)

(v) Every family has a black sheep. (Begin : There is no)

(vi) I have never worn a more ill-fitting suit. (End : ever worn)

(vii) Anil is too fast a runner not to come first in the race. (Begin : Anil is so.....)

(viii) As soon as the sports meet ended, the children ran on the field. (Begin : Hardly)

ANSWERS

Answer 1.

(a) THE GIFT

Aniket was in a fix. It was his parents' anniversary and he had forgotten to wish them. At work, he was contemplating about finding a suitable gift for them to surprise them in the evening. However, it was easier said than done. His father had a keen interest in books and arts while his mother was the quintessential Bengali housewife who only wanted utility stuff as gifts. He just couldn't buy something like a watch, or jewellery, for the risk of being scolded for spending hard-earned money without consulting them first. Being in the fag end of the month, Aniket had to even look at his stretching expenditures before deciding to buy something. He spent the whole day thinking about the gift options while pretending to look busy at work. He also searched online for ideas, for something financially viable, an attractive yet a utilitarian thing, something that brings a smile on his parents' faces, but in vain.

Finally, at around 4 p.m., Aniket decided that it is best to get down to the market and look for a gift himself rather than thinking around in circles. He left office early, and about an hour later found himself roaming around the busy roads of Karol Bagh market looking at the colourful stores and stalls. He walked around for nearly an hour, only to get confused at the end.

At last, swallowing his pride he dialled his father, "Hello Baba, is Ma around? Yes, well I forgot to wish you guys happy anniversary today. I was feeling bad about it, so I am here at the market looking for a gift. But as always I am totally confused as to what to buy. Can you help me out, please?" He heard a chuckle at the other end. "Where are you? At the market? Well, come home first, we'll decide on the gift later". With that, his father disconnected the line. "Well at least they are not angry," thought Aniket as he walked back home somewhat relieved.

As he rang the bell and walked in, he found his father at his desk, working on some project

files while his mother was tinkering something in the kitchen. Aniket touched their feet and sought blessings from them and it hit him at that moment. The best gift he can give them is his love and respect which are much more valuable and priceless than any material gift while the blessings he received from them were by far the best gift he could ever get in return!

(b) MONEY IS IMPORTANT FOR HAPPINESS

Money holds an important place in our day-to-day lives. We need money for most things we are required to do. From education to travel to household expenses, man needs money. Without money, life becomes difficult or at times impossible.

(1) FOR THE MOTION

Money makes one powerful, wealthy, respected, and stylish, enabling him/her to live a lavish and comfortable life without any trouble or botheration. Many people believe that if one has money then he/she can get anything. All his needs and demands can be fulfilled with money. Perhaps they are right. In today's world, your social status is measured by your bank balance, your posh house and swanky cars that you possess. Your status is measured by the number of clubs that you are a member of or how many parties you throw to your friends and admirers during the week or month. If you have ample money, you will always be surrounded by many people who pose or feign to be your admirers and well-wishers. The fact that money can buy anything in the world justifies it to be the ultimate source of happiness in life. People consider themselves very lucky if they have got enough money to live a lavish life and spend that money in any manner they may deem fit. Thus for them, it is the most important thing to get happiness, well being and almost anything under the sun.

(2) AGAINST THE MOTION

Money is definitely a source of happiness to mankind. But this happiness is not permanent since money is not likely to stay with you forever. People think that money can buy anything they need and is a guarantee for a good life. It is true to some extent but not entirely. Money does not guarantee peace of mind and tranquillity since superfluous money gives birth to greed, arrogance and lust to have more. This desire is endless and invariably causes mental tension and health problems like high blood pressure, heart ailment and many more complications. Money is

thus said to be a 'necessary evil' in today's life. In general, people having more money, have a rather narrow mindset and they would not like to part with their money. So they cannot be generous and are unwilling to help others.

We should be able to draw a distinct line between the good effects and bad effects of having money. Those who have more money should have a broader mind to help those who need money for living. A wealthy person can easily pay for the education of a meritorious student who does not belong to a wealthy background. The concerned person would remain ever grateful to him for his act of kindness. The future of a bright student will be secured. A person with limited resources may be happier than a person with unlimited resources because the former has faith in himself and in God. He is happy with whatever God has given him and does not hanker after more.

Too much money for one and no money for another is a perennial problem. As a consequence nobody is happy; the one with no money wants to earn some and the one with more money hopes to earn even more and enhance his treasure. Therefore, money cannot be considered as lifelong source of happiness.

(c) MY EXPERIENCE WHEN I HELPED TO PREPARE A MEAL

Once when I was in school, my mother was taken ill. We were shocked and very disturbed since it was the first time that I saw my mother in bed late in the day, many hours after her usual rising time, early in the morning.

However, one morning the scene was different. My father was sitting by her side while my elder sister was preparing tea in the kitchen. Amongst the four siblings, I was closest to her. Even today, we are very close though living far away from each other.

My sister was in the kitchen, getting the meal ready for the day. Father had to go to the office and my elder brother was sent to school. I went to the kitchen and asked her if I could help her. She was very happy and her face beamed with joy. So, I sat by her and helped her by peeling the potatoes first and then chopping other vegetables. Although the chopping was not as good as hers but she was happy. I washed the vegetables and kept them aside for the next step. She was planning to make Dal. So I washed it and kept it ready for boiling. Lastly, rice had to be washed. I did that too and kept it in a bowl. Later, I poured water to

soak the rice well so that it takes less time to boil. While working with her, she kept asking me to be careful with the knife and the stove in order to avoid any accident.

It was my first time in the kitchen, but I thoroughly enjoyed the work. I was happy that I could help her and also learnt to cook dal. It was a good experience which helped me immensely later.

(d) **WAITING OUTSIDE THE
EXAMINATION HALL**

I was waiting outside the examination hall of Harcourt Butler School, on the first day of our Higher Secondary examination. It was my first experience of sitting in an exam hall outside my school. There was a strange feeling. I was apprehensive but not nervous.

This is the first step in any student's life to enter a bigger life outside his school where he has spent many years preparing himself for this day. Today was English Paper I. It was my favourite subject. There were so many other students from my school as well as some other schools too. Different types of noises were coming from everywhere. Some were frantically checking their notes for the final time before the first bell was to ring. Some were rehearsing lines mutely, but with their lips moving. Some of my classmates were also busy, the same way avoiding the eyes of their friends. Some parents had also come and were seen giving last-minute tips to their children.

I stood in a corner, silently, not trying to remember or recollect anything in particular. I was so lost in my own thoughts that I missed the first bell but suddenly found the other children hurrying towards the exam hall. When I began moving, one of my classmates with whom I used to share a desk in the class came by and both of us moved towards the hall.

At the entrance, a teacher asked for the admit card which we showed and he asked another person to lead us to our designated seats. We were asked to keep any books, notes, mobiles and other things near the door and collect them on our way out. Only pens, pencils and erasers were allowed inside the hall.

It was a big hall which could accommodate about 50 boys at a time. There were four rows of single desks in the hall. My seat was in the middle of the second row while my friend was seated in the fourth row.

Suddenly all the noise and turmoil was replaced by absolute serenity and silence. We all then,

joined our hands to praise to almighty, seeking His blessings and recited the 'Our Father'. As we got seated, the invigilators started giving us the answer sheets and we were asked to put our name, roll number and subject on top of the sheet. At exactly 9 a.m., the question papers were distributed to us. I sat composed and after a few seconds, opened the paper and started reading it. I was happy. It was an easy paper and I went through it twice, choosing five best questions which I had prepared well. It was a great experience.

I did moderately well in the exams passing with a good second division and scored the highest marks in English in my class.

(e) **THE GAME OF CRICKET**

The picture here depicts three village girls on a rough ground with one of them holding a cricket bat. The idea is perhaps to show the wide popularity of cricket in India, in the villages and towns apart from the metropolis.

Men have been performing well in cricket for many years now. Of late even the Indian Women's Cricket team is doing well in the domestic and the international circuit. In the last ICC Women's World Cup, the Indian women team led by Mithali Raj narrowly missed the cup and ended as runners-up. Captain Mithali Raj was the top scorer while medium-pacer Jhulan Goswami became the first-ever woman cricketer in the world to beg 200 ODI wickets. Thereafter, the team toured South Africa and played five ODIs and three T20 matches there, almost simultaneously with our Men's team. They returned home triumphant, winning both the ODI and T20 series. BCCI has recognised the talent of women cricketers and has brought the players under a central contract scheme like their male counterparts. Some outstanding cricketers amongst them are Mithali Raj, Harmanpreet Kaur, Jhulan Goswami, Rumeli Dhar, Ekta Bisht and Veda Krishnamurthy.

Women's cricket in India is slowly gaining prominence and popularity among the public. To popularise the game further, the BCCI must take more initiative. Publicity of Women's Cricket needs a big boost. There should be regular telecasts of women's cricket matches. These telecasts will boost the players' morale and consequently, people will be drawn towards the game. With more viewers, advertisers will also show interest to sponsor women's cricket team as they do for men's cricket now. Cricket academies

for budding players should be set up throughout the country and scouting should be done to find future cricketers from schools and colleges. If BCCI starts taking concrete steps in earnest, women's cricket in India will flourish in no time.

Answer 2.

(a) A/13 Himgiri Apartments

Kalkaji, New Delhi

19th March, 20XX

My dear Uncle,

I received your letter a few days back. I am sorry for my late reply, as I was busy with the sports event in my school which ended yesterday. You will be glad to know that I have won three prizes at the event.

I must thank you for asking my opinion about my favourite pet, which you propose to gift me on my forthcoming birthday. I would love to have a small puppy since dogs are said to be 'a man's best friend.' I want a little puppy not only because all of my friends possess one but also because it's a great companion. I assure you that I shall fully take care of it. Once I get it, the first thing I will do is to take him to a vet and get him a thorough checkup. I will clean and bathe him regularly and take him out to the park every evening.

He will be fed as per the vet's prescription. I will also take care of his regular checkups, preventive medicines and injections that need to be given to prevent any infection or disease. I shall give him the training to behave with people and whenever guests visit. This pet will live with us in our home just like another member of the family. Everyone at home is excited at the prospect of having a pet or rather, having another new member in the family. Give my regards to aunty and love to Rohan.

Your loving nephew,

Aniket

(b) St. Joseph School,

Ferozeshah Road, New Delhi

23rd May, 20XX

The Deputy Commissioner of Police

Office of DCP Traffic Control

Police Headquarters, New Delhi

Subject : Regulation of traffic outside St. Joseph School, Ferozeshah Road

Respected Sir/Ma'am,

I am writing this letter to you on behalf of my school, St. Joseph School. This letter intends to inform you about the chaotic situation of traffic just outside our school and some possible solutions for controlling the same.

First of all, I would like to bring to your kind attention, the traffic light at the three-way intersection on the main road in front of our school, does not function properly. Out of 30 days of a month, it is malfunctioning for most of the days. Secondly, the traffic policeman situated there for the traffic policeman is seldom manned by anyone, resulting in even more chaos on the road. All these factors together pose a serious threat to the safety of school children. Such uncontrolled traffic may lead to life threatening accidents also. It gets extremely congested here, creating a situation of a rush. This in turn, serves as a potential opportunity for anti-social elements promoting activities of child abuse. However, there are some feasible solutions to these problems.

- To start with, I would request you to kindly get the traffic light repaired or replaced immediately so that it can function smoothly.
- Deploy a traffic policeman at the intersections, especially during morning hours when the school children are arriving and in the afternoon when the school closes for the day so that he can regulate the traffic and ensure that the school buses are not hindered by the passing traffic.
- In case if it is possible, try and divert the afternoon traffic from the main road to the auxiliary road, next to the school lane so that the buses are able to move without hindrance.

Thanking you

Yours truly,

Aniket Sharma

Answer 3.

(a) (i) damaged /old and overused

(ii) thought aloud

(iii) got out/stepped out

(b) (i) Granny hoped that Uncle Ken would keep his new job because the salary was good and it was a steady job.

(ii) It tells that he was an irresponsible man and had a history of causing problems for his employers.

(iii) There was just one taxi in the town and so there would be huge possibility of business for another.

(iv) "Mohan and I needed no urging."

(v) Miss Kellner run indoors when she saw Uncle Ken at the wheel of the car because she was frightened and was aware of Uncle Ken's rash driving.

(vi) Uncle Ken wanted to turn around and head back home.

(c) (i) Once the car went through the wall, it got out on the other side where Uncle Ken brought it to a halt in the middle of the Maharaja's lawn. The Maharaja himself came running across the lawn and looked very happy to see Uncle Ken. He also invited Uncle Ken to a game of tennis. (53 words)

(ii) 'An Eventful Drive'. This drive was certainly eventful for most of the participants involved: Mohan and Ruskin got to go on a drive; Uncle Ken understood that he still needed to work on his driving skills; and the Maharaja got to see his friend.

Answer 4.

(a) (1) sitting; (2) peeped; (3) had; (4) thought; (5) making; (6) ran; (7) took; (8) looked.

(b) (i) by (ii) down
(iii) under (iv) down

(v) for (vi) over

(vii) about (viii) of

(c) (i) Although they have to go to bed early every night, they were allowed to stay up late on Saturdays.

(ii) The children were delighted since the exams had been cancelled.

(iii) We were not allowed to play either in the sun or in the rain.

(iv) This is the place where the dog was rescued from its cruel owner.

(d) (i) When she had finished the cooking, she laid the table.

(ii) Despite being old, he works hard.

(iii) "Please bring the parcel tomorrow," he said to the delivery boy.

(iv) I would rather play a game than watch television.

(v) There is no family that does not have a black sheep.

(vi) This is the most ill-fitting suit that I have ever worn.

(vii) Anil is so fast a runner that he cannot but come first in the race.

(viii) Hardly had the sports meet ended, when the children ran on the field.



GURUKUL

QUESTIONS

Question 1.

Write a composition (350-400 words) on any one of the following : [25]

- (a) Write an original short story that begins with the words: "It was raining hard that night. In my hurry to get into the house, I didn't notice the black car parked across the road. I realized something was wrong when....."
- (b) "School days are the happiest days of our lives." Express your views either **for** or **against** this statement.
- (c) Narrate an incident from your own experience when you helped a friend who was in trouble. Explain what happened. What did you do to make the situation better ?
- (d) There has been heavy rain in your city/town. You went to school but found that it was closed because of the rain. Describe the sights and sounds near the school and narrate how you finally reached home and spent the rest of the day.
- (e) Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however there must be clear connection between the picture and your composition.



Question 2.

Select any **one** of the following :

[10]

- (a) A number of loose electric wires are hanging from a lamp post near the main gate of your school. Write a letter to the Municipal Commissioner explaining the problem, the danger it poses and suggest a quick solution.
- (b) You were a part of an organizing committee for an inter-school event which was very successful. You and the other committee members were congratulated and praised at the school assembly by the Principal. Write a letter to your grandmother telling her about the event and your feelings at being recognized and praised in front of the school.

Question 3.

Read the following passage carefully and answer the questions that follow :

Every Monday, on his way back from work, Bipin Chowdhury would drop in at New Market to buy books. He had to buy at least five at a time to last him through the week. He lived alone, was not a good mixer, had few friends, and didn't like spending time in idle chat. Those who called in the evening got through their business quickly and left. Those who didn't show signs of leaving would be told around eight o'clock by Bipin Babu that he was under doctor's orders to have dinner at eight-thirty. After dinner he would rest for half an hour and then turn in with a book. This was a routine which had *persisted* unbroken for years.

Today, Bipin Babu had the feeling that someone was observing him from close quarters. He turned round and found himself looking at a round-faced, meek-looking man who now broke into a smile.

"I don't suppose you recognize me."

Bipin Babu felt ill at ease. It didn't seem that he had ever encountered this man before. The face seemed quite unfamiliar.

"Have we met before ?" asked Bipin Babu.

The man looked greatly surprised. "We met every day for a whole week. I arranged for a car to take you to the Hudroo falls. My name is Parimal Ghose."

"Ranchi ?"

Now Bipin Babu realized this man was making a mistake. Bipin Babu had never been to Ranchi. He smiled and said, "Do you know who I am ?"

The man raised his eyebrows, and said, "Who doesn't know Bipin Chowdhury ?"

20

Bipin Babu turned towards the bookshelves and said, "You've making a mistake. I've never been to Ranchi."

The man now laughed aloud.

"What are you saying, Mr. Chowdhury ? You had a fall in Hudroo and cut your right knee. I brought you iodine. I had fixed up a car for you to go to Netarhat the next day, but you couldn't because of the pain in the knee. Can't you recall anything ? Someone else you know was also in Ranchi at that time. Mr. Dinesh Mukherjee. You stayed in a bungalow. You said you didn't like hotel food. I'll tell you more; you always carried a bag with your books in it on your sightseeing trips. Am I right or not ?"

Bipin Babu spoke quietly, his eyes still on the books.

30

"Which month in Nineteen fifty-eight are you talking about ?"

The man said, "October."

"No, sir," said Bipin Babu. "I spent October Nineteen fifty-eight with a friend in Kanpur. You're making a mistake. Good day."

But the man didn't go, nor did he stop talking.

"Very strange. One evening I had tea with you on the verandah of your bungalow.

You spoke about your family. You said you had no children, and that you had lost your wife a *decade* ago."

When Bipin Babu had paid for the books and was leaving the shop, the man was still looking at him in utter disbelief.

40

Bipin Babu's car was safely parked in Bertram Street. He told the driver as he got into the car, "Just drive by the Ganga, will you, Sitaram." Driving up the Strand Road, Bipin Babu regretted having paid so much attention to the *intruder*. He had never been to Ranchi. He had an excellent memory.

Unless he was losing his mind !

- (a) Give the meaning of the following words as used in the passage.

One word answers or short phrases will be accepted.

(i) *persisted* (line 7)

(ii) *decade* (line 38)

(iii) *intruder* (line 43) [3]

- (b) Answer the following questions briefly in your own words :

(i) How did Bipin Chowdhury find time to read five books a week ? [2]

(ii) How did he get rid of visitors who stayed late ? [2]

(iii) Which sentence tells you that Bipin Babu was uncomfortable ? [2]

(iv) What strong argument did Bipin Babu give to prove that he was not in Ranchi at that time ? [2]

(v) What does Bipin Babu regret ? [2]

(vi) What are Bipin Babu's feelings at the end of the passage ? [2]

- (c) (i) What memories of the trip does Parimal Ghose evoke to prove that Bipin Babu was indeed in Ranchi? Answer in not more than 60 words. [8]

(ii) Give a title to your summary in 3(c) (i). Give a reason to justify your choice. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

(0) started

My mother (0) _____ (start) school when she (1) _____ (be) six and (2) _____ (stop) the same term. She was unusual in the village as she had a father and brother who (3) _____ (encourage) her to go to school. She was the only girl in a class of boys and claims she was brighter than the boys. But every day she (4) _____ (will) leave behind her girl cousins (5) _____ (play) at home and she (6) _____

- (envy) them. There (7) _____ (seem) to be no point in (8) _____ (go) to school just to end up doing housework. [4]
- (b) Fill in each blank with an appropriate word :
- (i) She shouted angrily _____ the disobedient boy.
- (ii) I asked them to provide us _____ a guide.
- (iii) The tree grew at a dangerous slant and had to be cut _____
- (iv) My daughter believes _____ fairies.
- (v) He drew a beautiful diagram _____ the board.
- (vi) She battled her way _____ the crowd.
- (vii) We were asked to gather _____ the teacher.
- (viii) They had to climb _____ the steep pathway to reach the top. [4]
- (c) Join the following sentences to make one complete sentence without using and, but or so.
- (i) This is the hospital. I was born here.
- (ii) The children have been sick for a week. They were unable to go to school.
- (iii) Mrs. Kumar has been a teacher for thirty years. She will now retire.
- (iv) We have had to respect for nature. Now we are suffering from the effects of global warming. [4]
- (d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.
- (i) Not many people read for pleasure these days. (Begin : Few.....)
- (ii) Since her childhood Meera has been good in Mathematics. (End : childhood)
- (iii) "We have had no rain since January", Ramu said. (Begin : Ramu said that they)
- (iv) It is dangerous as well as illegal to drive a motorcycle without a helmet. (Begin : It is not)
- (v) He had plenty of wealth but he was not happy. (Begin : In spite)
- (vi) He was so tired that he could not stand. (Use : too.....)
- (vii) Every one of them was an experienced mountaineer. (Begin : There was no.....)
- (viii) I have never seen a film as bad as this. (Begin : This is)

ANSWERS

Answer 1.

(a) IT WAS RAINING HARD.....

It was raining hard that night. In a hurry to get into the house, I didn't notice a black car parked across the road. I realized something was wrong when an arm pulled me into the bush next to the door. I tried shouting but another big palm landed on my mouth. I struggled with my legs but soon felt a fistful blow that made me unconscious.

I woke up to loud voices of men and women screaming around me and the heat made me squirm uncomfortably. I opened my eyes, feeling dizziness in my head and coughed. There was smoke all around me. I heard the loud sound of a fire engine and found myself in a house that was on fire.

It was not my house, the things lying there were not mine. It was an unknown place.

I was scared. In order to look for a way out I pulled myself up and started moving towards the door. I touched the doorknob and 'aeww!', it was hot. It then struck me, the house was on fire.

I didn't know what to do. The coughs became frequent and it was difficult to breathe. I didn't

realize when I fell down unconsciously. I could feel nothing, but faintly heard a door break open and I was being covered and carried away.

The cool breeze on the skin and faint voices calling out my name, brought me out of the deep slumber. I opened my eyes to white walls and lights around me. I felt a warm hand on my palm and heard exciting words. 'He is awake now!' Moving my head towards the right, I saw the most beautiful face, my mother was there in front of me and tears welled up in my eyes. Feeling safe, I drifted peacefully into sleep again.

My parched throat forced me out of sleep. I mumbled softly, 'water', 'water !' I drank some and opened my eyes, feeling a lot better. It felt like a rebirth.

(b) SCHOOL DAYS ARE THE HAPPIEST DAYS OF OUR LIVES

(1) FOR THE MOTION

School was like my second home, my teachers and friends were my family! I still remember my first day in school.

None of us was crying, but playing happily and taking turns on the slide. Those were some

carefree days with no worries. Learning alphabet and numbers was not a big deal. Although the best part was shouting our lungs out while telling the rhymes. My favourite time was spent in the little garden that had slides, merry-go-round and other fun rides. Soon time flew and we all were in the primary section. I still remember those moments vividly, all that fun while sneaking around the corridors, playing in the rains, stealing mangoes from the mango tree in our school garden and watching our playground turn into a swimming pool.

One incident that I can never forget, is "The Rat's Day Out." Our science teacher Mrs. Kamath was taking our class, when suddenly someone from the corner of the class screamed "Eekkkss! There is a rat here", so we all jumped on our bench-tops, more shouting and screaming followed, but somehow Mrs. Kamath convinced and made us sit at our places so that she could proceed, but we were not in the mood to listen, and in every five minutes someone would shout that there is rat here and there to which finally, Mrs. Kamath got annoyed and called the peons. The class was vacated and the peons went on a 'Rat Hunt'. Finally, after 15 minutes, the rat was caught, but the moment we stepped inside, the bell rang to which we all heaved a sigh of relief!

One more incident that I can recall is when we were in the 10th standard, our principal decided to take our History Classes (normally Principal ma'am never took classes). For a week we did succeed in trying hard to act decent in front of the principal, but soon got bored, moreover we were frustrated by the way our principal taught. Every day she would revise whatever she taught the day before and then start afresh. Then one day we observed that when one of our classmates was coughing, Madam would stop until he stopped coughing. There, our devil brains started working again. So from the next day, we began our daily ritual of coughing our heart out. Our Principal tried to adjust for a week with our persistent coughing but ultimately she complained to our class teacher. So the next day, our teacher distributed Halls tablets to the whole class and warned us all that we should not catch cold.

Seriously I enjoyed school days a lot. Whenever I meet my old school mates, such beautiful memories flash again and bring back smiles and tears of joy and I miss my school all the more, the place where I spent the happiest days of my life.

(2) AGAINST THE MOTION

It's not necessary that the school days are always the happiest days of our lives as we generally think. They sometimes appear to be a nightmare. Some people don't even want to dream of their school days as they bring fear to their mind. The first thing that terrorizes the children is getting up early in the morning when the rest of the world is sleeping. The anxiety begins at night only when one has to prepare the bag according to the timetable, gets his or her uniform ironed and polish the shoes. They enter the bathrooms yawning and unwantedly when it's still dark in the morning. After which, waiting at the bus stop in the early morning hours on the lonely roads adds one more tag to the boring routine life.

In the class again the teachers are aggressive who pressurize the children for completing work on time. These teachers, scold and punish the children for negligence and thus develop a kind of inferiority complex in them. Such students feel insulted in front of the other students if the work remains incomplete. Howsoever genuine reasons the students give, the teacher would not listen. It seems as if the teachers have descended from some other planet or as if they are from the army who still hold the strict army rules. They are dried, rude, rough and bitter and that may be due to their job demand as they have to face the class of mixed children but children don't understand their limitations.

Then there are boring school uniforms for continuous many years. The same colour, same pattern, same hairstyle and same footwear. It's difficult to see the so-called uniformity daily. Everything becomes so monotonous that children lose charm in attending the classes. Apart from this, there are daily morning assemblies which children usually hate and try to avoid. They find different excuses to sit in the class. Sometimes they get a diary note to be shown to the class teacher or the monitor to sit in the class during assembly.

It's not necessary that all the subjects are interesting for all the children. Some may find Biology interesting, while others may find English or Math more interesting. So what happens is that, the uninterested children create chaos in the class and disturb other students as there is no such system in our country to provide only those subjects to the children in which they are interested.

So I can say that, there is one or the other anxiety always during the school time. One has to be time bound and cannot live the life of a free bird.

(c)

FRIENDSHIP

Haroon and I were best friends long since we met in grade 5. He was the only friend I had when I moved to England with my family. We had studied in the same school and college but our path diverged as we grew up and followed our own ambitions. Haroon became a radio jockey and I became a lawyer. Though we were far apart, yet we would never miss an opportunity to meet each other and help each other in times of need.

One day he called me that he had been arrested and I went to rescue my best friend. I bailed him out of jail and then he told me that the previous evening when he was returning from his work, he had stopped at a nearby mart to buy some food items, when he saw a black man beating up a teenager. Being a good Samaritan, he went to help the teenager and knocked out the man. The teenager ran away.

Haroon called the police and after investigation, it was found that the black man was the owner of the shop and was beating the robber (the teenager). Even though Haroon tried his best to explain to the police, what the misconception was, but no one was ready to listen to him and it appeared as he had accompanied an armed robbery and assaulted a civilian, and consequently he was arrested and taken to the jail.

Haroon was confused and shocked at what was going on and suddenly realized that he had actually saved the robber! I believed my friend as I knew he could never do such a misdeed and as he couldn't afford a lawyer, so I insisted him on keeping me.

Haroon had to appear in front of a court to explain his actions. The police had caught the thief who was involved and he blamed Haroon for being the mastermind of the plot, even though Haroon had no idea of who he was. The video of the fight going outside the mart was shown which made Haroon look as the criminal. I argued that the tape of inside the mart shall also be seen to prove that Haroon was innocent. Though the judge had made his decision, yet he ordered the tape to be shown and it seemed obvious that Haroon had helped the robber unintentionally. The judge saw this as a case of misconception and apologized for the problems caused. Overjoyed, Haroon and I congratulated each other.

(d)

MY EXPERIENCE ON A RAINY DAY

My Experience on 'A Rainy Day' gives me sour memories. It's true that rains are blessings but sometimes they are a curse. If we could control rains and bring them wherever we are, or keep them off as long as we desire them, of course rains would be a blessing. But as we all know that elements of nature are not under human control, they are sometimes not to our liking. There was a day when it rained and I did not like it.

It was a usual day and I went to school but it was closed due to rain. I regretted for not having checked any message or notification from school about the holiday. Though I was also a little happy for not having school that day. Thus, I started for home. Even at that hour, I could see bad weather ahead. Dark, smoky clouds gave the warning of rain. I thought I would be safe if I got into a bus.

I was getting into the bus when it started raining and it rained the way as it had never rained. Within a few minutes, everyone was drenched to the skin. No one got the time to get shelter. In a very short time, the roads were flooded and the traffic came to a standstill.

Visibility was reduced to a few meters. It poured so heavily that even the headlights could not pierce the thick sheet of water pouring from the sky. Water collected more speedily on roads than it went down the drains.

The stalls and the temporary structures of the shops at the bus stop dripped. Those inside the shops and buses were in no way better than those outside on the road, who were getting wet in utter helplessness. It soon became worse. The stools, benches, chairs and small tables, outside the shops and stalls began to float in the rising streams of rainwater. It was a pity to see people running after their articles.

A man running to catch a bench fell into a drain. He might have been swept away by the strong current but the water itself threw him out. The poor man stood for a moment looking dazed at the rushing water.

It rained continuously for four hours and during this period all activities came to a halt. When at last the rain stopped, I was hardly in shape to carry on my journey. I longed to be at home in my comfortable bed.

Finally, I reached home sick and sad.

(e)

PICTURE COMPOSITION

We have evolved from animals and since then, we humans do have a connection with them. Animals

have been man's best friends and companions as they understand us so well that we don't even have to say what we don't want or feel. It is said very often that a Dog is a man's best friend.

The relation that you develop with an animal is lifelong and rigid unlike that which you build up with another person.

The people who have pets would be able to explain better, the relation they hold with these animals. Animals respond back with all their love and affection and would make sure that no harm reaches us. Whether it is a bird or an animal, pets have a special bonding with their masters.

Apart from the bonding, they also provide great services to their masters. For example, cats and dogs are the most common pets found. Cats help in keeping the house clean by killing rodents and insects and dogs safeguard the house and keep strangers away. The sensitivity to smell in dogs has been the greatest tool used to hunt down criminals. Apart from them, even birds form a great company. Parrots are wonderful pets and they talk so much that it is real fun to be with them. They also inform the owner when strangers are around.

Apart from cats and dogs, horses, elephants, donkeys and camels can also be tamed and used by man for his needs. These animals help a man in several ways and have been of great help to man for several decades. Animals also rescue men from danger. There have been instances where dogs have saved small kids or old men from dangerous situations like drowning or an accident.

The help that these animals give can not be measured by any means and animals and man do share a special kind of bonding. Rather than seeing the commercial side with animals, if a man tries to be more compassionate with them, they would do anything for him and will maintain an everlasting relationship.

Answer 2.

(a) Tarangi nagar, M.G. Road,
West Bengal
23rd March, 20XX

The Municipal Commissioner,
Bidhannagar Municipal Corporation,
Kolkata

Subject: Hanging live wires in front of the School Main Gate

Dear Sir,

I would like to bring to your kind notice, the miserable condition caused due to the hanging of live wires in front of our school's main gate. Our area is Salt Lake City Sector-1, Kolkata. Although we have made repeated complaints to the Municipalities at repeated intervals, yet they have paid a deaf ear to our complaints. These wires are causing havoc among kids who get dispersed in an attempt to safeguard themselves. It has been a persistent issue for long now. Also, these wires can prove to be life-threatening and with each passing day, we fear any mishap.

We would, thereby, like to call for your immediate attention for the said problem without any further delay.

Yours sincerely,
Sannidhya Datta

Plot no: 137

M.G. Road

Agrapath

Hyderabad

23rd March 20XX

Dear Grandma,

I hope that this letter finds you in the best of your health and spirits. Recently, I had the opportunity to organise the annual cultural fest in my school- 'Ullas'. It was a three-day long inter-school cultural fest with a huge number of events ranging from painting to writing to spell bee to dance and so on. We had a huge participation from schools across the city and it was a huge success. However, our school came second in the fest overall. Next day, in the morning assembly, all my team members and I were appreciated for organising the event so well. It was indeed a great learning experience for all of us. This event helped us a lot to develop our sense of team spirit, working as a group hence we had a lot to take back. However, when the principal praised us in the assembly it was a great experience for all of us. I could not refrain myself from sharing this moment of glee with you. Hope to hear from you soon.

With love,
Sunny.

Answer 3.

- (a) (i) continued
(ii) a period of ten years
(iii) encroacher

- (b) (i) Bipin Chowdhury had a few friends and he didn't socialize much. Moreover, he always took his dinner at 8:30 p.m. after which he devoted all the time to reading books.
- (ii) If any visitor stayed back late and didn't show any signs of leaving, Bipin babu used to tell the visitor at 8'o clock that he was under doctor's orders to have dinner at eight-thirty. Also, he had to rest for half-hour after dinner and then read his books.
- (iii) "Bipin Babu felt ill at ease."
- (iv) Bipin Babu said that in the October of 1958, he was in Kanpur with his friend and this was the strongest argument that he gave.
- (v) Bipin Babu regretted having given so much of attention to the intruder and for having answered all his questions diligently.
- (vi) Bipin Babu felt that he should not have given so much of importance to the intruder. He knew that he had an excellent memory unless he was loosing his mind.
- (c) (i) Parimal Ghose in the beginning told Bipin that when the latter had cut his right knee, he was the one to get iodine. He reminded that how allergic Bipin was to hotel food and that he carried a bag of books. He added that Bipin had stayed in a bungalow and had also spoke about his family.
- (58 words)
- (ii) **The Persuasive Man** : This is because Parimal Ghose by all means tries to pursue Bipin

Chowdhury to believe in the fact that he had been to Ranchi before.

Answer 4.

- (a) (1) was (2) stopped (3) encouraged
(4) would (5) playing (6) envied
(7) seemed; (8) going
- (b) (i) at (ii) with (iii) down
(iv) in (v) on (vi) through
(vii) around (viii) up
- (c) (i) This is the hospital where I was born.
(ii) Having been sick for a week, the children were unable to go to school.
(iii) Mrs. Kumar who has been a teacher for thirty years will now retire.
(iv) Since we have no respect for nature, we are suffering from the effects of global warming.
- (d) (i) Few people read for pleasure these days.
(ii) Meera has been good in Mathematics since her childhood.
(iii) Ramu said that they had had no rain since January.
(iv) It is not only dangerous but also illegal to drive a motorcycle without a helmet.
(v) In spite of the plenty of wealth he had, he was not happy.
(vi) He was too tired to stand.
(vii) There was no one who was an inexperienced mountaineer amongst them.
(viii) This is the worst film I have ever seen.

GURUKUL

QUESTIONS

Question 1.

Write a composition (350-400 words) on any one of the following : [25]

- Write an original short story that begins with the words: "The day started off well enough, whoever thought it would....."
- Narrate an incident from your own experience when you expected to do very well, but for some reason were unable to do so. Explain what happened and why it happened. What lesson did you learn from it ?
- "The use of Mobile Phones must be allowed in schools." Express your views either **for** or **against** the statement.
- You walk home from school one afternoon to find the door unlocked and on entering you are shocked to see the house in total disarray. You call out but get no answer. Describe in detail what you saw, the reason behind your house being in total disarray and how you found your family. Mention also how the experience ended and what impact it had on your life.
- Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the

picture or you may take suggestions from it; however there must be clear connection between the picture and your composition.



Question 2.

Select any **one** of the following :

[10]

- Your class wants to visit a well known historical monument in a nearby town. Write a letter to your Principal seeking permission and say why you would benefit from the visit.
- Your school recently held a jubilee celebration. Write a letter to your friend who was unable to attend, giving details of the function and your role in it.

Question 3.

Read the following passage carefully and answer the questions that follow :

For some time Mother had greatly envied our swimming, both in the daytime and at night, but as she pointed out when we suggested she join us, she was far too old for that sort of thing. Eventually, however, under constant pressure from us, Mother paid a visit into town and returned to the villa coyly bearing a mysterious parcel. Opening this she astonished us all by holding up an extraordinary shapeless garment of black cloth, covered from top to bottom with hundreds of frills, pleats and tucks. 'Well, what do you think of it ?' Mother asked. We stared at the odd garment and wondered what it was for. 'What is it ?' asked Larry at length. 'It's a bathing-costume, of course,' said Mother. 'What on earth did you think it was ?' 'It looks to me like a badly-skinned whale,' said Larry, *peering* at it closely. 'You can't possibly wear that, Mother,' said Margo, horrified, 'shy, it looks as though it was made in nineteen-twenty.' 'What are all those frills and things for ?' asked Larry with interest. 'Decoration, of course,' said Mother indignantly. 'What a jolly idea ! Don't forget to shake the fish out of them when you come out of the water'. 'Well, I like it, anyway,' Mother said firmly, wrapping the monstrosity up again, 'and I'm going to wear it.'

10

20

'You'll have to be careful you don't get waterlogged, with all that cloth around you,' said Leslie seriously.

'Mother, it's awful; you can't wear it,' said Margo. 'Why on earth didn't you get something more up to date?'

'When you get to my age, dear, you can't go around in a two-piece bathing suit...you don't have the figure for it.'

'I'd love to know what sort of figure that was designed for,' remarked Larry.

'You really are hopeless, Mother,' said Margo despairingly.

'But I like it...and I'm not asking you to wear it,' Mother pointed out angrily.

'That's right, you do what you want to do,' agreed Larry; don't be put off. It'll probably suit you very well if you can grow another three or four legs to go with it'.

Mother snorted indignantly and swept upstairs to try on her costume. Presently she called to us to come and see the effect, and we all trooped up to the bedroom. Roger the dog, was the first to enter, and on being greeted by this strange apparition clad in its voluminous black costume rippling with frills, he retreated hurriedly through the door, backwards, barking *ferociously*. It was some time before we could persuade him that it really was Mother, and even then he kept giving her vaguely uncertain looks from the corner of his eye. However, in spite of all opposition, Mother stuck to her tent-like bathing-suit, and in the end we gave up.

In order to celebrate her first entry into the sea we decided to have a moonlight picnic down at the bay, and sent an invitation to Theodore, who was the only stranger that Mother would tolerate on such a great occasion. The day for the great *immersion* arrived, food and wine were prepared, the boat was cleaned out and filled with cushions and everything was ready when Theodore turned up.

- (a) Give the meaning of the following words as used in the passage.

One word answers or short phrases will be accepted.

- (i) *peering* (line 12)
(ii) *ferociously* (line 36)
(iii) *immersion* (line 42) [3]

- (b) Answer the following questions briefly in your own words :

- (i) Why did mother not join the swimming in the beginning? [2]
(ii) Briefly describe her swimming costume. [2]
(iii) What did Larry think it was? [2]
(iv) Which sentence tells you that Margo thought it was old fashioned? [2]
(v) What was Leslie's concern? [2]
(vi) Why did mother think it was suitable? [2]

- (c) (i) In not more than 60 words describe what happened after mother went upstairs to try on her costume. [8]
(ii) Give a title to your summary in 3(c). (i) Give a reason to justify your choice. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

(0) He had been (0) ... (sit) on the bank of a small irrigation canal.

Answer : sitting

He was (1) ... (gaze) at a couple of heron (2) ... (fish) in the muddy water, when he (3) ... (feel) something bump his elbow. (4) ... (look) around, he (5) ... (find) at his side a little goat, jet black and soft as velvet with lovely gray eyes. Neither her owner nor her mother (6) ... (be) around.

She continued to (7) ... (nudge) Mukesh, so he (8) ... (look) in his pocket for nourishment. [4]

- (b) Fill in each blank with an appropriate word :

- (i) There was a steep rise _____ onion prices.
(ii) Air pollution is responsible for the spread _____ bronchitis.
(iii) He was _____ pressure to complete the work.
(iv) Joan jumped _____ the river to rescue the child.
(v) His teacher is very pleased _____ him.
(vi) Ali took _____ his cap and wiped his face.
(vii) The old woman could not get _____ the shock.

(viii) He should not get _____ with such rudeness. [4]

- (c) Join the following sentences to make one complete sentence without using *and*, *but* or *so*.

- (i) *My grandfather is very old. He is very active.*
 (ii) *Mala is not in the classroom. Mala is not in the library.*
 (iii) *She was so excited about her performance. She could not sleep at night.*
 (iv) *Mumbai is densely populated. It is one of the major cities in the country.* [4]
- (d) *Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.*
- (i) *The book was so interesting that I could not put it down.*
 (Begin : The book was too.....)
- (ii) *The Principal said, "All the prizes will be distributed tomorrow."*
 (Begin : The principal said that)
- (iii) *Last night's dinner was cooked for us by father.*
 (Begin : Father)
- (iv) *If Mary catches the first bus, she will be on time for school.*
 (Begin : Unless)
- (v) *In spite of having high fever the girl came to school.*
 (Begin : Despite)
- (vi) *I prefer going out with friends to staying alone at home.*
 (Begin : I would rather.....)
- (vii) *Hardly had the teacher left the room, when all the children started making a noise.*
 (Begin : No sooner.....)
- (viii) *This is the funniest movie I have ever seen.*
 (Begin : Never)
- [8]

ANSWERS

Answer 1.

(a) THE DAY STARTED OFF WELL ENOUGH.....

The day started off well enough, but whoever thought it would be a bad one were partly mistaken. This day was to become a life-changing one for Astrid. He woke up at five as usual, just in time to catch the rising sun that appeared red on the horizon, and to breathe in the fresh morning air amidst the musical chirping of the birds flying in the air. The grass beneath his bare feet was wet with dew and it gave him a strange sensation. This was the only peaceful moment of the day that Astrid would enjoy. Hereafter, every morning begins a mad rush for the numerous trips to tutorial classes, libraries, book stores and college. But today would be different because he would be going home after exactly one year.

Astrid was secretly preparing for the entrance examinations for the National Defense Academy and had cleared the written examinations as well. Although his family had opposed his idea, determined Astrid went ahead with a crash course in preparation for the Services Selection Board that he was to face later that month. In fact, he planned to leave for the SSB centre right from his home town.

After almost an hour's jostle in the heavily crowded bus during peak Kolkata traffic, Astrid managed to reach the station. After another gruesome war at the ticket counter of the perennially crowded Sealdah Station, he managed to secure a seat in

one of the superfast trains that would take him to his destination in three hours' time. He enjoyed gazing out of the windows of moving trains and buses and was caressed to sleep by the soft wind fanning his face and hair.

Four hours later, he was walking along the alley that led to his house but from afar he was quite surprised to find a small crowd gathered in front of his house. As the people became aware of his approach, he was quite puzzled with their expressionless looks. Astrid entered his house only to find his father's lifeless body, enshrouded in a piece of white cloth, lying on a plank on the floor. There were two injury marks on his forehead. His mother, sister and some neighbours were sitting around the body with expressionless faces.

Within a matter of a few minutes, his life changed forever. It made Astrid stronger and more resolute, and he did go on to join the Indian Army.

(b) AN EXPERIENCE

Even though it is important to prepare well yet at times we do experience failure in spite of the best preparations. Such things can happen due to many reasons and one of them is over-confidence or underestimating the opponent. A similar incident happened to me, which earlier I did regret, but admittedly, it gave me a lesson for a lifetime.

I had received the Best Athlete Award for three consecutive years from my school for performances, not only in the Annual School

Sports but also in the Interschool Athletic Meet. Considering the fact that I hardly met any tough opponent in the 100 m, 200 m, 400 m relay and 100m hurdles races, success had actually gone to my head and I had grown to be proud and egoistic, sure to remain undefeated. Although I never had tantrums or showed disrespect to anybody, yet at times I considered people to be inferior to me and formed poor estimates of them.

That was the reason for my undoing and the lifelong lesson.

Two years ago, I was representing my school in the All-India ICSE School Sports Event in Shillong and many of the participants were already aware of my presence. They considered me to be a formidable competitor who could not be defeated. But, there was one person, who did not think so. Hailing from one of the smaller towns in the tribal belt of Jharkhand, Samson was a dark and lanky fellow who was lucky to have been taken in by the missionaries and given a proper education. His tribal instincts, inherited from his ancestors, made him tough.

We cleared our qualifying heats easily, though, never pitted against each other during the initial stages. But, the finals were a different ballgame altogether. In spite of my reputation and consistency, there was always a chance for somebody else winning the race, though I dismissed such thoughts summarily. Consequently, disdainful of the others, I took a day off from practice just ahead of the finals and went sightseeing.

As the whistle blew, we darted for the finish line of the 100 m event and in a few seconds, I was far ahead of others. But Samson overtook me by a fraction of a second just at the finishing line. It was too late but I did realize the importance of assessing opponents thoroughly to understand their strengths and weaknesses.

(c) THE USE OF MOBILE PHONES MUST BE ALLOWED IN SCHOOL

(1) FOR THE MOTION

The above is a highly debatable topic and there can be numerous arguments and counter-arguments related to it. On my part, I feel that children should be allowed to use mobile phones in school but with a great deal of caution.

With the infiltration of mobile phones, human life has become both easy and complex. In fact, today the phone does not serve merely as a device for making calls to friends and distant

relatives, but it also serves as a computer device through which we can check our e-mails, social and professional networking profiles, surf the net, download movies, songs and books, and do online shopping. It can also guide us when we are visiting or are lost in unknown places. In short, a mobile phone is not a mere device any longer, it is an indispensable virtual world that has become part and parcel of our lives.

There are many instances of little children missing their buses and vans while on their way home from school. They can be traced easily if they have their mobile phones with them. Also, if some students are absent from school and home at the same time, then both the school authorities and parents can keep track of their whereabouts. There are frequent reports of children being kidnapped from school for different reasons. Such incidents can be avoided if there are mobile phones with them.

School authorities often complain that children use mobile phones to play games or surf sites and indulge in other inappropriate activities in class than paying attention. However, these can be prevented by laying down strict rules. For example, schools can specify that children are allowed to carry only basic JAVA sets, without cameras, audio and internet surfing facilities. Also there should be provision to submit the phones to the teacher before beginning the class, restricting the use to only before and after school or during breaks. There should be frequent and surprise checks to ensure that students comply with these rules.

In fact, if children learn to use mobile phones responsibly in school, then they will be able to do so in their later lives as well. Also, it will give them the idea that they can be and are trusted by their elders on such important issues. This will help them to develop as responsible individuals.

(2) AGAINST THE MOTION

Although there has been a rapid increase in technology, particularly in communication technology, and children have adapted to them much better than adults, yet the question that arises in my mind is, do children really need mobile phones in school? Many generations of school students have completed their schooling, even their higher education without a mobile phone, so why is there a need for school students to carry such devices, all of a sudden?

In school, the child really needs to learn and play, so how can mobile phones come with handy in these two activities? In fact, children will grow a tendency to fiddle with their devices and thereby disturb themselves and their classmates as well. The teachers will also be wasting valuable time and energy just to ensure that children are not texting or playing video games in class.

Moreover, those children who are hooked on to mobile games actually might use them as a pretext for avoiding outdoor games and sports. Consequently, this will prevent them from being fit and healthy and will also not help them to understand the concept of team-spirit as all such children would be busy playing games by themselves. It will also lead them to be addicted to online games and therefore lose their focus on constructive activities.

Some parents argue that carrying mobile phones to school provides additional safety to children. But that can be equally taken care of by a planned and systematic approach for handling children. This methodology has been used successfully, all the while.

Mobile phones are also responsible for scandalous video clips, especially in co-educational schools, causing much embarrassment and pique to girls' families. Such nuisance can be avoided if mobile phones are banned within school premises.

Lastly, there might be enviousness among students concerning whose mobile phone has more features and this might lead to unnecessary acts of crime like theft, vandalism and even fights. All such petty issues can be avoided, by banning mobile phones in schools.

(d) A CHAOTIC SITUATION

This afternoon, as I came back home from school, I had the most anxious moment of my life. In fact, I was quite surprised to see the front gates wide-open and a lot of tyre marks crisscrossing on the lawn that did not resemble the tyre marks of our car. Even the front door opened by a mere turn of the knob. But what I saw after that left me stunned and immobilized for a few seconds. Everything was in disarray—cupboards and drawers pulled open, broken flower vase on the floor, the covers of the sofas and other furniture ripped open.

My first reaction was to shout out for my mother and grandmother and next for James, our Alsatian dog. When there was no answer, I ran to my mother's bedroom. The condition of that room was also the same and both my mother and

grandmother were firmly tied and taped on the bed. James was lying lifeless in the balcony and there was blood all around him.

I grabbed a pair of scissors, freed the two women and helped them recirculate their blood. Grandmother was too shocked to speak and mother said haltingly that three gun-toting hooded men entered the house all of a sudden and ordered them into that room. Then they tied them up firmly and began to thoroughly search the house. They were not looking for money or jewellery, but they were after some drawings or plans that my father had made. Hearing this, I rushed to my father's study and found all the things scattered as usual and the cabinets broken open. Papers and drawings were scattered all over the room.

Next, I called up the police and then my father. The police came in twenty minutes and my father, a little later. My father felt relieved that both mother and grandmother were unhurt except for the bruises on their wrists because of the tight tapes. The intruders were actually looking for some drawings that father had made for building a new missile system for our defence forces. It is a well-known fact that my father always keeps a backup of his work on his home PC. He suspected that this was the work of enemy spies who were desperate to get the plans to improve their own missile systems. After taking stock of the situation and making some further inquiries, the police left. Strangely, my father had remained calm all along. He said that in every drawing there was some object which was wrongly positioned deliberately. This had been done to hoodwink people like these and it was a technique that had been perfected by Leonardo da Vinci.

(e) PICTURE COMPOSITION

The picture reveals the relief brought to the city by the first showers of the season. For the past few weeks, the city was enshrouded by the sweltering heat and it was becoming unbearable for most of the people, especially the pavement dwellers.

These showers did have a cooling effect because the mercury dipped by almost six to seven degrees and the day was cloudy overall. The Meteorological Department had predicted that the rains will continue for another forty-eight hours. That meant, that the people will be able to relax for some more days.

However, the brief spell was also enough to cause waterlogging in some parts of the city and if the

rains continue then greater parts of the city would soon become waterlogged. This is a perennial problem and nothing concrete has been done over the years to improve the situation. This water-logging also marks the onset of some of the most common water-borne diseases like cholera and dysentery because the water enters the sewers and water reservoirs. Consequently, the first showers are always dangerous because of the threats to the outbreak of diseases.

However, most people prefer to soak themselves in these showers because of the relief they provide. Men and women, old and young, all seem to come out of their homes and enjoy themselves. Also, huge crowds flock towards the seafront to enjoy the lashings of the seawaters. Young children enjoy the most, especially those living on pavements. They troop to the fields and play football and other games. For once, cricket takes a back seat.

Answer 2.

- (a) Flat 236, Block C,
Hill Great View Apartments,
Salam street,
West Bengal

28th February, 20XX

The Principal
St. Patrick's H.S. School
Asansol, West Bengal.

Subject : Permission for educational trip to The Indian Museum, Kolkata

Dear Sir,

Through this letter, we seek your permission for a one-day educational trip to the Indian Museum in Kolkata. Built in the British era, the Indian Museum is one of the largest museums in the country and is a huge storehouse of artefacts. A visit to this place will be beneficial for us because of the numerous scientific instruments and specimens that can be seen there. It will also provide with a clear idea about the process of evolution that is beautifully explained through numerous figurines and skeletal displays. Also, we will have an opportunity to learn about the different rock-formations over the ages, the implements used by early human beings and numerous fun-filled aspects of science.

Our science teachers will accompany us on this trip. We propose to start early in the morning so as to be able to return on time the same day.

I request you to please grant us the permission for the trip.

Thanking you,

Yours faithfully

Students of Class Xth

- (b) D. K. Road

Durgapur

West Bengal

February 26th, 20XX

Dear Rima,

It was indeed unfortunate not to have you amongst us during the Golden Jubilee celebrations of our school, Carmel Convent, Kolkata. Had you not met with the accident, probably you could have also shared the fun. However, I have taken it upon myself to give you at least a glimpse of it through this letter.

The Principal of our school, in the presence of the Chief Guest and other dignitaries, delivered a fine speech, narrating the initiation of the Carmelite Order and their motto. He also narrated how the Carmelite Nuns came to India and started different schools in the country and how, over the years, the students have upheld the dignity and prestige of the institution.

The celebrations began with a song and a dance presentation. It was choreographed entirely by the students of the senior section and had almost thirty participants. It was followed by poetry recitals, debate and quiz contests.

On the second day, an exhibition-cum-fete was organized within the school premises where the students had displayed their drawings, handicrafts and scientific models. The ceremony came to an end with another stellar song and dance performance. All the present and past students, parents, guardians, teachers and staff members enjoyed immensely. The Principals of all the other Carmelite institutions across the country were in attendance.

Hope I have enabled you to enjoy a small part of the fun and festivities. Get well soon.

Yours affectionately,

Paromita

Answer 3.

- (a) (i) looking closely
(ii) fiercely
(iii) dipping something into a liquid
(b) (i) Mother did not join the swimming in the beginning because she considered herself to have grown rather old for that sort of thing.

(ii) Mother's swimming costume was an extraordinarily shapeless black garment that was covered with hundreds of frills, pleats and tucks from top to bottom.

(iii) Larry thought that Mother's swimming costume was a badly-skinned whale.

(iv) 'You can't possibly wear that, Mother', said Margo, horrified, 'Why, it looks as though it was made in nineteen-twenty'.

(v) Leslie was concerned that all the cloth on the costume might actually trap enough water to waterlog their mother.

(vi) Mother thought it to be suitable for an aged lady like herself.

(c) (i) The children trooped upstairs to scrutinize Mother in her costume. Roger, the dog, entered first. He saw an apparition and came out barking ferociously. After sometime Roger was persuaded that it was actually Mother but he kept giving her vague uncertain looks. However, Mother stuck to her bathing suit adamantly. The children surrendered to her opinions. (56 words)

(ii) The above summary can be entitled '**Roger Sees an Apparition**'. This title is appropriate because the summary actually describes Roger's first reaction upon seeing Mother in a swimming costume. He felt as if he had seen some apparition.

Answer 4.

- | | | | |
|-----|--|-------------|-------------|
| (a) | (1) gazing | (2) fishing | (3) felt |
| | (4) looking | (5) found | (6) was |
| | (7) nudge | (8) looked | |
| (b) | (i) in | (ii) of | (iii) under |
| | (iv) into | (v) with | (vi) off |
| | (vii) over | (viii) away | |
| (c) | (i) Although my grandfather is very old, he is very active. | | |
| | (ii) Mala is neither in the classroom nor in the library. | | |
| | (iii) She was so excited about her performance that she could not sleep at night. | | |
| | (iv) Mumbai, one of the major cities in India, is densely populated. | | |
| (d) | (i) The book was too interesting to be put down. | | |
| | (ii) The Principal said that all the prizes would be distributed the next day. | | |
| | (iii) Father cooked last night's dinner for us. | | |
| | (iv) Unless Mary catches the first bus, she will not be on time for school. | | |
| | (v) Despite having high fever, the girl came to school. | | |
| | (vi) I would rather go out with friends than stay alone at home. | | |
| | (vii) No sooner did the teacher leave the room than all the children started making a noise. | | |
| | (viii) Never have I seen a funnier movie than this. | | |

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GURUKUL

QUESTIONS

Question 1.

Write a composition (350- 400 words) on any one of the following : [25]

- Write an original story that begins with the words: "He was the funniest boy I had ever met. He would make everyone laugh....."
- You had booked a ticket on an early morning train. However, you woke up late and missed it. You then decided to run to catch a bus to the next station where you hoped to catch up with the train. Narrate the entire event, how you felt, the effort you made and how you finally caught the train. What did you learn from this stressful experience ?
- All Girls or all Boys Schools provide a better learning environment than co-educational schools. Express your views either **for** or **against** the statement.
- Describe in detail the view from your bedroom window. Does your room overlook a park? A busy street? What are the sights, sounds and smells that you would typically see, hear and experience at different times of the day? When do you most enjoy the view? Early in the morning, in the evening or late at night?
- Study the picture given alongside. Write a short story or description or an account of what the picture suggests to you. Your composition may be about the subject of the picture or you may take suggestions

from it; however, your composition must have a clear connection with the picture :



Question 2.

Select **one** of the following :

[10]

- Break time (recess) at your school is only for a duration of fifteen minutes. Write a letter to your Principal requesting an extension in the breaktime from fifteen minutes to half an hour. Give reasons for your request and explain in what way an extended break would make a difference to you as a student.
- You are to be awarded a Special Prize at the Annual Prize Day ceremony of your school. Write a letter to a lady relative giving her the news. Be sure to include details of the prize that you are to receive and tell her why you have been chosen for this honor.

Question 3.

Read the following passage carefully and answer the questions that follow :

Lying in bed, Swami realized with a shudder that it was Monday morning. It looked as though only a moment ago it had been the last period on Friday; already Monday was here. He hoped that an earthquake would reduce the school building to dust, but that good building—Albert Mission School, had withstood similar prayers for over a hundred years now. At nine o'clock Swaminathan wailed, "I have a headache." His mother said, "Why don't you go to school in a bullock cart ?"

"So that I may be completely dead at the other end ? Have you any idea what it means to be **jolted** in a cart?"

"Have you any important lessons today?"

"Important ! Bah ! That geography teacher has been teaching the same lesson for over a year now. And we have arithmetic, which means for a whole period we are going to be beaten by the teacher ... Important lessons !"

And Mother generously suggested that Swami might stay at home.

At 9:30, when he ought to have been lining up in the school prayer hall, Swami

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was lying on the bench in Mother's room. Father asked him, "Have you no school today?"

"Headache," Swami replied.

"Nonsense! Dress up and go."

"Headache."

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"Loaf about less on Sundays and you will be without a headache on Monday."

Swami knew how *stubborn* his father could be and changed his tactics, "I can't go so late to class."

"I agree, but you'll have to; it is your own fault, You should have asked me before deciding to stay away."

25

"What will the teacher think if I go so late?"

"Tell him you had a headache and so are late."

"He will beat me if I say so."

"Will he? Let us see. What is his name?"

"Mr. Samuel."

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"Does he beat the boys?"

"He is very violent, especially with boys who come late. Some days ago a boy was made to stay on his knees for a whole period in a corner of the class because he came late, and that after getting six cuts from the cane and having his ears twisted. I wouldn't like to go late to Mr. Samuel's class."

35

"If he is so violent, why not tell your headmaster about it?"

"They say that even the headmaster is afraid of him. He is such a violent man."

And then Swami gave a lurid account of Samuel's violence; how when he started caning he would not stop till he saw blood on the boy's hand, which he made the boy press to his forehead like a vermilion marking. Swami hoped that his father would be made to see that he couldn't go to his class late. But Father's behavior took an unexpected turn. He became excited. "What do these people mean by beating our children? They must be driven out of service. I will see..."

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The result was he proposed to send Swami late to his class as a kind of challenge. He was also going to send a letter with Swami to the headmaster.

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No amount of protest from Swami was of any *avail*: Swami had to go to school. By the time he was ready Father had composed a long letter to the headmaster, put in an envelope and sealed it.

"What have you written, Father?" Swaminathan asked apprehensively.

50

"Nothing for you. Give it to your headmaster and go to your class."

Swami's father did not know the truth, that actually Mr. Samuel was a very kind and gentle man.

- (a) Give the meaning of each of the following words as used in the passage.

One word answers or short phrases will be accepted.

(i) jolted (line 9)

(ii) stubborn (line 22)

(iii) avail (line 47) [3]

- (b) Answer the following questions briefly in your own words :

(i) What did Swami wish for on a Monday morning? Why was his wish unlikely to be answered? [2]

(ii) Which sentence tells us that Swami's father was completely unsympathetic to his son's headache? [2]

(iii) In what way was Swami's mother's response different from his father's? [2]

(iv) Why did Swami give a colorful account of Mr. Samuel to his father? [2]

(v) In what way did Father's behavior take an unexpected turn? [2]

(vi) What was Swami finally ordered to do by his father? [2]

(c) (i) In not more than 60 words describe how Swami tries to prove that Mr. Samuel is a violent man. [8]

(ii) Give a title to your summary in 3(c). Give a reason to justify your choice. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

(0) One morning I (0) ... (see) the python curled upon the dressing table.

Answer : Saw.

It was (1) ... (gaze) at its own reflection in the mirror. I (2) ... (go) for grandfather but by the time we (3) ... (return) to the room, the python (4) ... (move) on. He was seen in the garden and once the cook saw him (5) ... (crawl) up the ladder to the roof. Then we (6) ... (find) him on the dressing table again (7) ... (admire) himself in the mirror. "He's trying to look better for Aunt Mabel" I said. I (8) ... (regret) this remark immediately because grandmother overhead and held up my pocket money for the rest of the week! [4]

- (b) Fill in the blanks with an appropriate word :

(i) He found the key just _____ the front door.

(ii) I could not accompany my cousin _____ the trip because I had fever.

(iii) The noise prevented us _____ sleeping.

(iv) The young man put the flute _____ his lips and began to play.

(v) Ashok leaned _____ the wall tiredly.

(vi) The paper dart went gliding _____ the air.

(vii) The cyclist rode quickly _____ the path.

(viii) The young child carried the heavy bucket _____ the stairs. [4]

- (c) Join the following sentences to make one complete sentence without using and, but or so.

(i) He has learnt cycle. He has yet to learn to swim.

(ii) The child helped her mother to make breakfast. She washed the tomatoes.

(iii) They bought a new car. They can travel long distances.

(iv) Sunita opened her purse. She found the money missing. [4]

- (d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.

(i) Arun gave Ramesh some excellent advice.

(Begin : Ramesh was)

(ii) As soon as Sania sat down to study, the lights went off.

(Begin : No sooner)

(iii) Has Alia written to you ?

(Begin : Have you)

(iv) As soon as the function got over. The crowd dispersed.

(Begin : Hardly had)

(v) The monsoon is the best season in our country.

(Rewrite using 'good')

(vi) Harish was so tired that he could not keep his eyes open.

(Begin : Harish was too)

(vii) Father said to Sunil, "I can help you with your homework."

(Begin : Father told Sunil)

(viii) Naresh goes to a school which has over a thousand students.

(Begin : There)

[8]

ANSWERS**Answer 1.**

- (a) **HE WAS THE FUNNIEST BOY I HAD EVER MET.**

HE WOULD MAKE EVERYONE LAUGH.....

He was the funniest boy I had ever met. He would make everyone laugh with his witty remarks, quirky explanations or plain tomfoolery. He was my best buddy and his name was Satya.

He was a lover of fun which could be at anybody's expense, even at his own. He did not mind being made the butt of a joke now and then.

Satya was in the habit of chewing gum and once a nosy old man asked him, "Why do you keep chewing gum all the time? It's like patronizing western consumerist policies."

As is typical of Satya, he replied coolly, "Well, Uncle, I do that simply to contribute to India's

economic growth. When I chew pack of gum, I actually spend money to buy it from the local *paanwallah* and he must be making a profit out of it, even if small, isn't it? In his turn, the *paanwallah* buys it from the wholesaler and distributor who again make profits from the gum. At the same time, the delivery agent makes money in transporting it and is able to hire a helper who would otherwise be unemployed and take to petty theft to feed his family. The manufacturer of the gum sells it to the wholesaler and distributor, making a neat little profit of his own. Likewise, as the demand for gum increases, he is able to hire more people and enables them to lead dignified lives through honest labour. These employees are then able to spend on things beyond the bare necessities enabling people in other sectors, to lead dignified lives again. Gradually, because of the constant

demand and supply, businesses expand and hiring continues. This enables people like us to get work and a chance at dignified existence. You see, it is all about a continuous cycle of existence!" Till today, that nosy old man is unsure whether to feel enlightened or to feel humiliated! And Satya continues to be loved because of his witticisms and quirky explanations.

(b) MISSING THE TRAIN.....

In India, punctuality is a rarity. Everything here is said to happen in 'five minutes', but nobody knows what would be the actual duration of those 'five minutes'. In government offices, they can extend up to some hours as well. Trains are the biggest defaulters! A delay of 15 to 20 minutes is quite normal and timely, especially for commuter trains. Consequently, daily commuters adjust their time-tables accordingly. In fact, problems arise when they start running in time, all of a sudden and the regular routines get disrupted, inconveniencing office-goers, students and a host of others.

I am also one of the billions of Indians who depend upon the Indian Railways for commuting to and fro from my office daily. It is cheap, comfortable and a lot less time consuming than any other form of transport. Moreover, I get to meet so many people on the way. Subsequently, like the rest of my brethren, I am too in the habit of catching a particular train everyday that runs late by about 10 to 15 minutes. But sometimes, my routine gets disrupted like it happened yesterday!

As usual, I reached the railway station at 8:05 a.m. to board the passenger train scheduled at 7:50 a.m. but departing regularly at 8:10 a.m. However, it was a shock for me to learn that the train had left on time leaving, most of my fellow commuters stranded. The next best option to be in office right on time for the scheduled meeting was to take the town service bus to the inter-city bus depot. That's what I did.

The scene at the depot made me almost fall on my knees because it seemed all those unfortunate souls who missed the train had the same bright idea as I did and ended up occupying every conceivable square inch of the bus! After a great deal of acrobatics, I managed to get a foothold and hung on the overcrowded bus. My intention was to get down at the next railway station, which was on the way and catch the elusive train. I only hoped that the others did not have the same bright idea flashing in their minds.

Luckily for me, nobody did. I got down at the next station only to learn that my train was actually

delayed by an hour because of some technical reasons! You can well imagine how the rest of my day went.

(c) ALL GIRLS OR ALL BOYS PROVIDE A BETTER LEARNING ENVIRONMENT THAN CO-EDUCATIONAL SCHOOLS

(1) FOR THE MOTION

All girls or all boys schools definitely provide a much better learning environment.

The growth of an individual lies upon the basic foundation which is laid down in a school, and having girls and boys in the same school cannot cater to the proper development of either, as they have different requirements.

Moreover, the competition between the genders can result in an unequal learning environment, and the inclination towards a subject can also be highly hampered.

The biggest fear for students in a co-education is the fear of being laughed upon, and this fear deteriorates the confidence level to a great extent. While in a gender-specific education, this fear is less, maybe because one may feel that everybody present around them is cut from the same cloth. Hence, it leads to a great sense of comfort.

It is vital that boys and girls learn how to work together, so a completely gender-specific school is believed to be counterproductive. They learn to work in unity, have confidence and then whenever required, they are very well qualified to work without having any feeling of inferiority or superiority amongst each other.

Many researchers have proved that single-gendered education helps the student to excel in all aspects of their life. They teach the students to focus and set their priorities in life, and they eventually emerge out as successful human beings, with flying colours.

(2) AGAINST THE MOTION

Many arguments, have been put forward so many times in favour of boys and girls studying in separate schools. It is believed that they are able to concentrate more on studies in such schools. They feel more comfortable dealing with the students of the same gender. "When girls go to all girls' schools, they stop being the audience and become the players" is the opinion of two American professors. Well, I have my reservations about these well-deliberated observations. I think I'll always remain an advocate of co-educational schools.

There are many reasons why I prefer co-educational schools. The foremost reason being that the school is a world in miniature and all rudiments of life are learned from here. In the real world, both the genders have to mingle and interact with each other. So, these basic lessons have to be learnt in school.

Secondly, there is no superiority or inferiority as far as intelligence is concerned. A girl is as skilled as a boy in intellectual spheres, so every competition is fair and equal. If boys and girls grow up in the same environment, having the same exposure, then there is no question of feeling odd or shy in front of each other. It rather inculcates confidence for the future and also enhances their personality.

A research conducted at Arizona State University in 2011 shows classes that separate boys and girls can be detrimental to the personal and social growth of both. Children spend their formative years in the classroom developing skills that will help them in maintaining relationships throughout their lives. If a child has little exposure to the opposite gender, then building meaningful relationships can be difficult for him/her.

In a nutshell, everything boils down to the fact that gender diversity suffers at a single gender school. In addition, even if it is easier for students to participate actively and do well academically at a coed institution, the real world is not gender-specific. It may prove difficult for students from gender-specific schools to adjust to a coed work atmosphere after they graduate. A real-life atmosphere makes children accept the other gender and interact with them normally. This will drive away the belief that boys are from Mars and girls are from Venus.

(d) FROM THE BEDROOM WINDOW

Staring out of bedroom window lazily is a luxury that can hardly be afforded by people these days. Either they are leading a typical life of cash-crunching robots, with hardly any time to catch two winks throughout the week or there is hardly any space available to see anything worthwhile because of the rapid developments all over the country and the huge number of buildings that are coming up every other day. Even getting a glimpse of sunshine amongst the clusters of skyscrapers is a matter of luck.

Still, there are people who do find the time and opportunity to enjoy the finer things of life. I am one such person who is very particular about what I want. For me, a spacious apartment in a posh locality is not the criteria. I would gladly settle for a small house at the fringes of the city,

offering me plenty of sunshine and surrounded by greenery.

When I moved to Pune, my search for the ideal apartment led to the discovery of a small one-storied house, bordering a lake on one side and the fringes of the Western Ghats on the other, fresh air, plenty of sunshine and the chirping of birds. Every morning, I woke up not to the ringing of the alarm clock but to the chirping of the exotic migratory birds that flocked the lake. As the place was on the outskirts of the city, there was hardly any noise of vehicles and consequently, even lesser smoke and dust. I was greeted by the sweet smell of different trees and plants around the house and the rays of the glistening sun.

However, the evenings were even more fascinating. Bright lights dotted the banks of the lake and it resembled a golden sun eclipsed by the moon. The birds would return to their nests and the air would be full with the sounds of the chirping of crickets and cicadas. Also, a cool breeze would blow and reduce the stress of the frayed nerves. It was a little paradise of my own because it had remained untouched by civilisation for the two whole years that I spent in Pune.

(e) PICTURE COMPOSITION

Such a beautiful sight of a tiger sleeping blissfully may not be seen any more in reality because of the rapid dwindling of tiger population all over the world. Most of the decline is due to the rampant poaching because of the huge demand for tiger skin and claws. It is also because of massive human encroachment into the natural habitat of the tigers, upsetting their eco-system and leading to a decline in their breeding.

However, the Indian government has done a commendable job in protecting tigers and contributing to their increase in population by almost 30% in just 3 years. It is the outcome of a meticulously planned approach towards tiger conservation, using all our knowledge about their behaviour patterns, food habits and everything else that has seen a rise in the number of tigers from 1411 in 2008 to 1706 in 2011 to 2226 in 2014. Consequently, India is now home to almost 70% of the world's tigers. Considering the above, the country can now play a prominent role in helping other countries in their tiger conservation efforts. The secret behind these figures is designated areas for tiger conservation in the country. These are manned by forest rangers who have actively worked towards the reduction in the number of poaching incidents. In India, the total area dedicated to tiger conservation is almost around

53547.5 sq. km or 20674 sq. miles. Altogether, there are 48 tiger reserves that are looked after by the National Tiger Conservation Authority (NTCA) and the Wildlife Institute of India (WII). Such sincere acts of tiger conservation will ensure that posterity is not seen only in books and digital media but also in real life. Tigers are here to stay!

Answer 2.

(a) Jingle Bells, Residency

Porur, Chennai

30th March, 20XX

The Principal
Millennium School
Porur,
Chennai 600 089

Subject : Extension of Recess Period at School

Sir,

We the students of the Millenium School, would like to earnestly request to add 15 minutes to the existing time for the recess. Currently, we are getting a lunch break of only fifteen minutes. We find it considerably less. We are not able to have our lunch properly in this short span of time. Moreover, there is a long wait near the water dispensers. Eventually, most of the time we have to go without water.

In addition to that, we do long for a few minutes to relax and enjoy with our friends. This will be a great stress buster for all the students.

We request you to kindly look into the matter at the earliest and allow us to have a half an hour of break.

Thanking you,

Yours faithfully,

Students of class 10th, section B

(b) 23, Bhana Vihar

M.G. Road

Pune

30th December, 20XX

Dear aunt,

I hope that this letter finds you in the best of health and spirits. Mummy informed me that you have returned from your trip and I'm sure you must have enjoyed your trip to Ooty. It must have been a welcome escape from this terrible heat of the summer.

I have some terrific news to tell you. Today, my class teacher told me that I'm going to receive an award for the 'Best Interact Club Member' of

this year. This is in view of my contribution to community welfare and the project on preserving the environment.

With the help of the Moderator of the club, I took the initiative to teach the underprivileged children of the nearby locality of our school after school hours. Along with my friends, I collected books, notebooks and other writing material for them. I made interesting Powerpoint presentations to spread awareness among them.

As far as my eco-development project is concerned, I motivated my class to plant trees all over the campus, initiated a rain harvesting system, and also hung pitchers of water for birds during the summer.

Altogether it was a delightful experience. I felt I was contributing something for the good of the other fellow beings and the environment. The fact that I'm going to be awarded for my initiative is the crowning glory. The Principal told me that no one has so far taken such interest in the club activities, that too, without my studies getting affected by it; so they have added a new category of awards this year and I will be the first recipient of this! My project on rain harvesting system will get a special mention on this day.

You have always taken a keen interest in what I do in school; so I felt like sharing the news with you. Please come to my Annual function so that you can see in person, your favourite niece receiving the award.

Looking forward to see you and uncle.

Yours lovingly,

Alia

Answer 3.

(a) (i) jerked (ii) obstinate (iii) use

(b) (i) Swami didn't want to go to school as he was having 'Monday blues'. He wished that his school would be razed to the ground by an earthquake. He knew that it was an impossible wish as his school, Albert Mission, had survived many prayers like this for over a century.

(ii) Swami's father's sarcastic remark "Loaf about less on Sundays and you be without a headache on Mondays" shows that he was unsympathetic towards Swami. He knew his son was pretending.

(iii) Swami's mother was convinced of her son's arguments and allowed him to stay at home. In her simplicity, she believed that her son really had a headache, whereas, his father was shrewd enough to understand his son's tactics and so he insisted that Swami should go to school.

- (iv) Swami started giving a colorful description of Mr. Samuel's violent behavior thinking that his father would be more sympathetic towards him and would allow him to miss his school.
- (v) Swami's father was taken aback listening to his son's description of the violent behavior of his teacher but he took it as a challenge and insisted that his son should go to school and also take the letter written by him to the Principal. Swami had thought that his father would take pity on him so that he would not have to face the wrath of the teacher but this reaction was totally unexpected.
- (vi) Swami was ordered to give the letter written by his father to his Headmaster and go to his class.
- (c) (i) Swami told his father that his teacher Mr. Samuel was very violent especially with the boys who are late-comers. He would beat, twist the ears and cane the palm till it would bleed, and then pressed it against the forehead of the student like a vermilion mark. Even the headmaster was afraid to intervene. **(54 words)**
- (ii) Title - 'A Pack of Lies'. Swami tells a lot of lies to restrain himself from going to school but they don't work out. In fact, they fell like a pack of cards; flimsy and without any solid base.
- Answer 4.**
- (a) (1) gazing (2) went (3) returned
 (4) had moved (5) crawling (6) found
 (7) admiring (8) regretted
- (b) (i) outside/near (ii) on (iii) from
 (iv) to (v) against (vi) through
 (vii) along (viii) up/down
- (c) (i) Although he has learnt to cycle, he still has not learned to swim.
 (ii) The child helped her mother to make breakfast by washing the tomatoes.
 (iii) They bought a new car to travel long distances.
 (iv) When Sunita opened her purse, she found the money missing.
- (d) (i) Ramesh was given some excellent advice by Arun.
 (ii) No sooner did Sania sit down to study, than the lights went off.
 (iii) Have you heard from Alia?
 (iv) Hardly had the function got over when the crowd dispersed.
 (v) No other season in our country is as good as the monsoon.
 (vi) Harish was too tired to keep his eyes open.
 (vii) Father told Sunil that he could help him with his homework.
 (viii) There are over a thousand students in the school to which Naresh goes to.

GURUKUL

QUESTIONS

Question 1.

Write a composition (350- 400 words) on any one of the following : [25]

- Write an original short story that begins with the words : "It's not my fault", he shouted.....".
- 'Working women make better mothers than women who stay at home.' Express your views either **for** or **against** this statement.
- Describe an early morning walk through your city or town in winter. Give details of the smells, sights, sound and feelings you experienced.
- Think of a time when you found yourself in an embarrassing situation. Narrate how you got into that situation, how you dealt with it and the lesson you learnt from it.
- Study the picture given alongside. Write a short story or description or an account of what the picture suggests to you. Your Composition may be about the subject of the picture or you may take suggestions from it; however, your composition must have a clear connection with the picture.



Question 2.

Select **one** of the following :

[10]

- Your uncle has promised to give you a gift of ₹ 1000/- Write a letter thanking him for the offer, tell him how you plan to spend the money; and why you wish to spend it in this way.
- You are the President of the Nature Club in your school which is hosting the Earth Day Celebrations. Write a letter to the Principal of a neighbouring school inviting the school to participate in the event. State when, why and how you plan to celebrate Earth Day.

Question 3.

Read the following passage carefully and answer the questions that follow :

A panther was terrorizing the Khulna district of Bangladesh, just outside the Sundarbans. It had recently carried off a little girl. She was the seventh person killed in two months by the animal. And it was growing bolder. The previous victim was a man who had been attacked in broad daylight in his field. The beast dragged him off into the forest, and his **corpse** was later found hanging from a tree. The villagers kept a watch nearby that night, hoping to surprise the panther and kill it, but it never appeared.

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The Forest Department hired a professional hunter. He set up a small, hidden platform in a tree near a river where two of the attacks had taken place. A goat was tied to a stake on the river's bank. The hunter waited several nights. He assumed the panther would be an old, wasted male with worn teeth, incapable of catching anything more difficult than a human. But it was a sleek tiger that stepped into the open one night : a female with a single cub. The goat bleated. Oddly, the cub, who looked to be about three months old, paid little attention to the goat. It raced to the water's edge, where it drank eagerly. Its mother followed it. Of hunger and thirst, thirst is the greater urge. Only once the tiger had **quenched** her thirst, she turned to the goat to satisfy her hunger. The hunter had two rifles with him : one with real bullets, the other with immobilizing darts. This animal was not the man-eater, but so close to human

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habitation she might pose a threat to the villagers, especially as she was with cub. He picked up the gun with the darts. He fired as the tiger was about to attack the goat. The tiger *reared* up, snarled and raced away. But immobilizing darts don't bring on sleep but knock the creature out without warning. A burst of activity on the animal's part makes it act all the faster. The hunter called his assistants on the radio. They found the tiger about two hundred yards from the river. She was still conscious. Her back legs had given way and her balance on her front legs was shaky. When the men got close, she tried to get away but could not manage it. She turned on them, lifting a paw that was meant to kill. It only made her lose her balance. She collapsed and the Pondicherry Zoo had two new tigers. The cub was found in a bush close by, meowing with fear.

The hunter, whose name was Richard Parker, picked it up with his bare hands and, remembering how it had rushed to drink in the river, named it Thirsty. But the shipping clerk at the Howrah train station was evidently a man both confused and diligent. All the papers received with the cub clearly stated that its name was Richard Parker, that the hunter's first name was Thirsty and that his family name was None Given. Richard Parker's name stuck. I don't know if the hunter was ever called Thirsty None Given !

- (a) Give the meaning of each of the following words as used in the passage.

One word answers or short phrases will be accepted.

- (i) corpse (line 5) (ii) quenched (line 17)
(iii) reared (line 22) [3]

- (b) Answer the following questions briefly in your own words.

- (i) Why does the author say that the panther 'was getting bolder' ? [2]
(ii) Why did the Forest Department hire a professional hunter ? [2]
(iii) What did the hunter expect to encounter ? What did he actually encounter ? [2]
(iv) What did the tiger do before turning to attack the goat ? Why did it do that ? [2]
(v) Why does the hunter decide to shoot the tiger though he knew it was not the man-eater ? [2]
(vi) What name did the hunter give to the cub ? Why ? [2]
(c) (i) In not more than 60 words narrate how the hunter and his assistants captured the tiger and her cub. [8]
(ii) Give a suitable title to your summary in 3(c)(i). Give a reason to justify your choice. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blanks space.

Example :

From his perch behind the clock, Hugo could (0) _____ (see) everything.

Answer : see

He rubbed his fingers nervously against the small notebook in his pocket and (1) _____ (tell) himself to be patient. The old man in the toy booth (2) _____ (argue) with the girl. She (3) _____ (be) about Hugo's age and he often saw her go into the booth and (4) _____ (disappear) behind the counter. The old man (5) _____ (look) agitated today. Had he figured out some of his toys were (6) _____ (miss) ? Well, there was nothing to be (7) _____ (do) about that now. The old man and the girl argued some more and finally she closed her book and (8) _____ (run) off. [4]

- (b) Fill in the blanks with an appropriate word :

- (i) The teacher spoke _____ for Raju when he was wrongly accused of stealing money.
(ii) We can visit her in the hostel _____ 3pm and 5pm on Saturdays.
(iii) The Sinhas have lived in New Delhi _____ 1943.
(iv) Little children are often afraid _____ the dark.
(v) Sneha has applied _____ a scholarship.
(vi) It took Ahmed many months to get _____ the loss of his friend.
(vii) She turned _____ the generous offer made by the manager.

(viii) We were asked to take _____ our footwear as we were entering a place of worship. [4]

- (c) Join the following sentences to make one complete sentence without using and, but or so.

- (i) He is good at gymnastics. His handwriting must improve.
(ii) Her grandfather gifted her a paint box. He knew she was good at art.

(iii) Ravi fractured his arm. He insisted on playing the match.

(iv) Mona has been ill for a month. She stood first in the examination. [4]

(d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.

(i) As soon as we lit the candle, the power supply was restored.

(Begin : No sooner)

(ii) The bee is more industrious than all other creatures.

(Use 'most industrious')

(iii) The old woman was too slow to catch the bus.

(Begin : The old woman was so)

(iv) "I'll do it tomorrow," he promised.

(Rewrite in indirect speech)

(v) Though Reema got an expensive gift she was not happy.

(Begin : In spite.....)

(vi) I prefer reading a book to watching a movie.

(Begin : I would rather)

(vii) I have never seen Mr. Roy lose his temper.

(Begin : Never.....)

(viii) She found your keys in the garage.

(Begin : The keys.....)

[8]

ANSWERS

Answer 1.

(a) **IT'S NOT MY FAULT.....**

"It's not my fault", he shouted, with tears running down his cheeks, tears of anger and frustration. His parents were sitting there, looking stunned. It was the day of the annual report card and the principal would hand over the report card personally. They knew that Rohan had not been doing well but they could never imagine that he would fail !

Rohan was a tall, handsome boy of sixteen. He had been an all-rounder throughout his school life. His cheerful and friendly nature made him popular among all the students. In class Xth, he secured 92% and they were all proud of him. Thus, it was not easy to accept the fact that he had failed in class.

Rohan cried and kept blaming his parents that they were responsible for his failure since they had forced him to opt for science which he was never his cup of tea. He wanted to go for commerce.

The principal got up and tried to soothe him down. Rohan's parents were still in shock to say anything. The principal looked at them sympathetically and spoke calmly, "It is not the end of the world. We have to deal with this situation calmly and rationally and look for a solution rather than play the blame game."

Rohan's parents, Mr. and Mrs. Sharma looked slightly relieved. The principal said that there were two options before them. Either Rohan could fail class XI and continue with science or he could switch to commerce and be promoted to Class XII. A gleam of happiness darted through Rohan's eyes and he looked at his parents. They were actually listening.

Seeing Rohan's hopeful expression, the principal warned him that if he chooses the second option he would have to work twice as hard since he would have to cover the Class XI syllabus too. Rohan was more than willing to agree to anything if he could only give up that awful chemistry. He knew that he was capable of hard work and now he had the motivation to work harder.

It was just over a year since that fateful day when the Sharmas had sat in the principal's office, feeling that the end of the world had come. They were there again in the school that day but for a very different reason. They had come to watch their son getting the principal's medal for the most meritorious student of that year ! Rohan topped the school. What could have been a disaster turned out to be a triumph !

(b) **'WORKING WOMEN MAKE BETTER MOTHERS THAN WOMEN WHO STAY AT HOME.'**

(1) **FOR THE MOTION**

I totally agree with the statement that working women make better mothers than non-working women. Being myself a child of a working woman, I feel that I am more independent, more confident and better adjusted in life because of my mother. Moreover, my admiration for my mother is much greater because she is able to combine all roles very efficiently. I have friends whose mothers do not work and I have seen their attitude towards their mothers. They take them for granted. Whenever a teacher asks what their parents are, they proudly speak about their father's profession and then adds that their mother is only a housewife with much awe.

When a woman becomes a mother, her responsibilities increase, especially in the formative years

of a child's life. She has to teach good manners and proper values to her child which makes the latter a good human being, who is well-educated and can take care of himself/herself. Some people believe that this can only be achieved if the mother stays in the house and does not go out to work, but this is not borne out by facts.

We have examples of women multitasking all around us. They look after the household matters and also do a job and nine times out of ten, they play all the roles superbly. They organise their time so well that all their work is done efficiently. They are independent and teach their children to be independent, which is a necessary trait for survival in the present world. Children learn how to keep their rooms neat and tidy and orderly arrange their clothes so that no time is wasted in the mornings. They learn to make a time-table for their studies. They also learn to help in the house which not only teaches them to be hardworking but also the dignity of labour. Moreover, a woman who goes out to work comes in contact with different people and situations and is able to give the correct advice and guidance to her child.

What a child needs is quality time, not quantity time. I admit that it is nice to know that your mother is waiting for you with a hot meal when you get back from school, that she has all the time in the world to listen to your problems and is always there to nurse you when you are sick. But is that enough reason to keep an educated and talented woman confined to the four walls of her house? When a woman earns her own money she has a sense of achievement and pride which makes her a role model for her children. My mother takes care of all of us, entertains guests and extended family, is highly respected at her workplace and yet I have never felt that my mother neglects me or is not there when I need her. I believe that she is a 'Super Mom' who is a wonderful mother, a great cook, a fabulous teacher and above all, my best friend.

(2) AGAINST THE MOTION

I totally disagree with this statement. There is a saying that 'God made mothers because he could not be everywhere.'

Home is the first school and mother is the first teacher. If a woman works outside the house how would she have the energy to tell bedtime stories and moral lessons to her child? She may not be there at mealtimes and the child would have to be kept in the care of a crèche. How would she ensure that the child gets the proper upbringing during the important formative years? Who would teach

the child to chew properly and to eat slowly? A child needs his/her mother at every stage of life.

When a woman is at home, she has enough time to spend with her children not because she has less work to do but because, being at home, she is there for the child whenever required. Children get time to share their problems, happiness, fun and curiosity with their mother. She teaches them everything. A child's best friend is his/her mother but if she is too busy taking care of both the home and her job how would she have the time and energy to be there for her child when required the most!

A woman's maternal instinct is very strong. A working woman has to leave her child when he or she is barely a month old and so, she remains constantly worried about her child. A child cannot be looked after properly in her absence.

Moreover, a woman who works outside also suffers from guilt since she is not able to spend enough time with her child. She either overindulges the child to compensate or becomes overly strict because she does not want the child to be spoilt. She suffers from great stress when the child is ill. Many employers are not considerate enough to give leave even in such situations. I admit that women are capable of multi-tasking but the stress involved in the life of a working woman is so rigorous that she is not able to do justice to either of her roles.

Hence, I would like to conclude that non-working women make better mothers than working women. If a woman stays at home and looks after her home and family, it is definitely more conducive both to her own well-being and that of her family.

(c) EARLY MORNING WALK

Walking is increasingly being prescribed by doctors for patients with diabetes, hypertension and several other diseases because this is an exercise which everyone can do and is beneficial too. The best time to go for a walk is early morning, as it is the best time for exercise.

I usually go for a walk with my grandparents. It is amazing in the morning when there is fresh air, so the chirping of the birds can be easily heard. The whole town looks so different. There are a couple of people in tracksuits and sports shoes walking briskly along. There are groups of elderly men gossiping and laughing among themselves.

As we proceed on our way we see cows, donkeys and group of dogs which appear to be a gang. Initially, these dogs used to bark at us but now

they have become friendly to us. My grandmother carries chappatis for the dogs and cows that we meet on the way. She also carries grain for the pigeons, parrots and crows in the park. She sits on a bench and it is a pleasure to see all the birds crowding around her for their breakfast. Apart from these birds, we also see sparrows, the seven sisters and sometimes unusual birds which I do not recognize. My grandfather has promised to buy me a book on Indian birds for my next birthday.

The park where we go is landscaped with ups and downs as we walk along. The park has trees of many varieties like Neem, Ashok and even some Date Palms. On the other side of the path are flower beds. In March and April, these flowers bloom in different shapes, colours and smells. I marvel at the richness which God has provided us with. When the flowers are in bloom, I breathe deeply to inhale the wonderful fragrances.

In the middle of the park, there is a hollowed out space which is well utilized by young boys for playing cricket. We, children, hate to go to school when it is too hot or cold but no adverse weather can stop us from playing our favourite game of cricket. Some people form a group and do yoga exercises on this ground. Sometimes my grandparents also join them while I play badminton with my friends here. The most interesting sight however, is a group of men and women who have formed a laughter club. They laugh so loudly that it becomes infectious and all the people around also laugh or at least smile.

By the time we return from our walk, many small tea stalls and sweetmeat sellers get their shops open making fresh 'sweets' and 'eatables' and we stop at my favourite 'sweet shop' and have sweets and hot milk ! This is how I love these morning walks.

(d) IN AN EMBARRASSING SITUATION

Teenagers are very self-conscious and self-doubting individuals because there are multiple changes happening in their psyche. People may find this an astonishing statement because people regard the teenagers as ill-mannered, brash and over-confident but believe me, this is just a facade to cover up our insecurities. We feel everything quite deeply, especially if someone insults or embarrasses us. Outwardly, we may appear defiant but we cringe inside. When we are placed in some difficult situation, we never forget it even if we live to be a hundred.

The proverb "Pride comes before a fall" became very apt for me. I had a great regard for followers

among my juniors. The result was that I became conceited and stopped at nothing before making fun of my classmates especially because some of my class fellows laughed at my witticism. This spurred on and I started misbehaving even when some lenient teacher was present. This happened most often in the Hindi period as our Hindi teacher was very lenient.

I had a good day laughing, joking and showing off to my admiring coterie of followers. None of the teachers had noticed what I was doing because they were too busy teaching.

Finally, the Hindi period followed and our Hindi teacher walked into the class just as the bell rang. I did not notice Ma'am coming in. I only realized that she was in class when all the children around me stood up and wished her. On seeing that she thought I was trying to insult her. She made me stand the whole period on the chair. The whole class kept looking at me, whispering and laughing. Ma'am did nothing to stop them. Instead, she asked how it felt to be at the receiving end for once. I had never felt so humiliated in my life. Now I realized how other children might have felt when I ridiculed them and I felt ashamed.

When the second period began Ma'am allowed me to sit down. What a relief ! She gave us the second period to study on our own as she had finished the syllabus. It was the last period of the day and no one was in a mood to study. All my friends came and sat near me on one pretext or the other. They started cracking jokes and made fun of the other children and teachers. One student imitated the way our English teacher spoke but in a very exaggerated manner. It was so funny that I burst out laughing. Ma'am became furious. I had just been punished and here I was laughing as loudly as a 'kookaburra' ! She lost her temper and yelled at me to go out of the class. She did not like such ill-mannered children in her class. I tried to apologize and explain the situation to her but she was too furious to listen to anything I had to say.

She called a teacher, who was free in that period, told him the whole story much to my embarrassment and asked him to take me to the Principal's office. There I stood outside the office for fifteen minutes. All the students and teachers who passed by made derogatory remarks. To my dismay, we were having a table-tennis tournament in our school that day and children from other schools were also participating. I knew that I would be greeted with whistles and catcalls. The final straw was the yelling which I got from my Principal. I realized that day how others would

have felt when I humiliated and embarrassed them and that day I decided never to behave like that with anyone ever.

(e) **PICTURE COMPOSITION**

Malti was the daughter of a farmer. She lived with her loving parents and younger brother on the banks of the river Brahmaputra. They were poor but happy. However, tragedy struck one day. It was a heavy monsoon and the banks of the river kept rising. The villagers were alarmed but not unduly as it was then August. The rains were sure to stop and the river would subside leaving behind good, alluvial soil for farming and the next set of crops would be a good one. However, this did not happen. The rains continued to pour down and their village was flooded. Boats and helicopters were sent to evacuate the villages.

Malti was on the higher grazing ground with her two bullocks. When the water started rising, she climbed on the back of the bullock and was swept away by the floods. Several miles downstream she was rescued by a police boat but there was no trace of her parents. She was taken to the police station and the head inspector taking pity on her, took her home where his wife cared for her. They waited for two months to get a response to their newspaper and television advertisement but there was no news from her parents.

A poor widow, Ganga, lived in the same area and had developed a liking for Malti. She had no one of her own and so it was decided that she would adopt Malti. Ganga worked as a labourer in the municipal corporation and got Malti a job there as soon as Malti turned twelve years old, as they could not survive on only one person's income especially, as Ganga could not work for several days at a time. Malti had to stop going to the local government school but she loved Ganga and realized that her adopted mother had no choice but to make her work.

However, Malti was determined to complete her education. Fortunately, an NGO had set up a night school for the children of the labourers. Eventually, Malti began to attend the school. Malti was a bright and hardworking child and her determination to succeed in life continued despite her hardships. She knew that the only way to make a better life for Ganga and herself was through education so she studied whenever she could. Her hardwork was rewarded when she secured first-class marks at the high school level. That achievement earned her a scholarship and she could now give up her labourer's job and study full time. Malti took the science stream at

the intermediate level and passed with flying colours. She was now admitted to a good college in a nearby town. Here also Malti worked very hard and secured the top position in her college. Ganga's health also improved and she no longer had to work in the dust and dirt of building sites. She could now avail better medical facilities and they began living happier lives.

Answer 2.

(a)

1/179 Civil Lines,
Suraj Niwas,
Meerut
5th March, 20XX

Dear uncle,

I hope that this letter finds you in the best of health and spirits. I would like to thank you for your kind offer of giving me ₹ 1,000/-. It is really very thoughtful of you.

There is a book "You Can Win" by Shiv Khara which I have been wanting to buy since a very long time. Everybody has been praising this book. I borrowed it from my friend for a short while and found it truly inspiring.

You know how fond I am of painting. My art teacher has praised my sense of colour and wants me to do a course during the summer vacation. She and her colleagues are holding a workshop of ten days during the summer holidays. I intend to use my gift of ₹ 1,000 on both these things.

So once again, I would like to thank you for your thoughtfulness and I hope you will be happy to hear the way I have planned to spend the money.

Mummy, Daddy and Rohan have also sent their regards to the whole family. Please convey my regards to Aunt Sheela and love to Poorvi. I am looking forward to the time when you all pay us a visit.

Yours affectionately,
Jyoti.

(b)

St. Johns Senior School,
Wazirpura, Agra
5th March, 20XX

The Principal,
St. Mary's Convent School,
Ghatia Azam Khan, Agra

Subject : Invitation for Earth Day Celebration

Respected Sir,

As the President of the Nature Club of my school, I would like to invite you, along with a team of teachers and students of your school, to participate in the Earth Day celebration which will be hosted by our school. on 22nd April, 10 a.m. onwards.

Our well-being entirely depends on mother Earth and its valuable resources. It selflessly provides food and water to all living beings. Hence, it is necessary for us to understand that we owe the responsibilities of safeguarding and protecting it. To raise awareness about the Earth's day, we are organising this event. The celebration will take place in our school compound along with two eminent environmentalists to chair the session. They will be giving lectures on the importance of preserving our planet. A movie will also be shown on Environmental Issues followed by an interactive session of the audience with the speaker.

The afternoon session will progress with two competitions, one of slogan writing and other of poster making. The best ones will be sent as an entry to the All India Competition.

I would like to request you to send five students along with one teacher. We have also invited ten other schools to participate in this event.

Thank you in anticipation of your positive reply.

Yours faithfully,

Prasson Joshi

President, Nature Club, Agra.

Answer 3.

- (a) (i) dead body. (ii) satisfied
(iii) to rise on hind legs.
- (b) (i) The author says that the panther was getting bolder because it had killed seven persons, including a little girl in last two months. The previous victim was a man who had been attacked in broad daylight in his field.
- (ii) The villagers kept a close watch for the panther hoping to surprise and kill it, but it never appeared so the Forest Department hired a professional hunter to track and kill the panther.
- (iii) The hunter expected to encounter a panther who would be an old, wasted male with worn teeth, incapable of catching anything more difficult than a human. But what he actually encountered was a sleek tigress with a single cub.
- (iv) Both the cub and the tigress raced to the water's edge and drank water because thirst was a greater urge than hunger.
- (v) The tiger was not the man-eater but it was too close to human habitation and might pose a threat to the villagers, especially as she was with a cub. He used the dart gun to immobilize her.

(vi) The hunter named the cub 'Thirsty' because it ignored the goat and raced to the water's edge where it drank greedily till its thirst was quenched.

- (c) (i) The hunter set up a platform in a tree with a goat tied nearby. He waited several nights. The hunter used immobilizing darts to fire at the tigress and called his assistants to follow her. They found the tigress near the river and the hunter picked up the cub hiding in a bush.

(52 words)

(ii) 'A Surprise Bonus' is the title I would give to my summary. This is because instead of the panther, a sleek young tigress and her cub were captured safely and relocated to the Pondicherry Zoo.

Answer 4.

- (a) (1) told (2) was arguing
(3) was (4) disappear
(5) looked (6) missing
(7) done (8) ran
- (b) (i) up (ii) between (iii) since
(iv) of (v) for (vi) over
(vii) down (viii) off.
- (c) (i) Though he is good at gymnastics, yet his handwriting must improve.
(ii) Her grandfather gifted her a paint box because he knew she was good at art.
(iii) Though Ravi fractured his arm, yet he insisted on playing the match.
- Or
- Ravi insisted on playing the match despite having fractured his arm.
- (iv) Mona stood first in the examination despite being ill for a month.
- (d) (i) No sooner did we light the candle than the power supply was restored.
(ii) The bee is the most industrious of all creatures.
(iii) The old woman was so slow that she could not catch the bus.
(iv) He promised to do it the next day.
(v) In spite of getting an expensive gift, Reema was not happy.
(vi) I would rather read a book than watch a movie.
(vii) Never have I seen Mr. Roy lose his temper.
(viii) The keys that belong to you were found in the garage by her.

••

QUESTIONS

Question 1.

Write a composition (350- 400 words) on any one of the following : [25]

- (a) Write an original short story that begins with the words : "In the background I could hear an awful commotion, men's voices raised and women screaming."
- (b) "Boarding schools are far better than day schools for the all-round education of a child." Express your view either **for** or **against** this statement.
- (c) You were on a school trip and were on your way back to the hotel late one night when your school bus, full of children, broke down in a lonely area. Describe what you saw and experienced as you looked around. How was the problem solved ?
- (d) Teaching someone else how to do something can be a rewarding experience. Think of a skill that you have helped someone to develop. Perhaps you taught someone how to swim or to bake a cake, or helped someone learn how to study more effectively. Narrate the events that made up the process of teaching the skill, and say what made the experience important and memorable for you.
- (e) Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 2.

Select **one** of the following :

[10]

- (a) You will soon have to make a decision about the subjects that you wish to study in classes XI and XII. Write a letter to your Grandfather telling him about the subjects that you plan to take up. Be sure to explain the reason for your choice and how you think these subjects would help you in the future.
- (b) The children in your neighbourhood are forced to play on the street for want of a proper play area. Write a letter to the Editor of a popular newspaper, pointing out the need for a playground in your neighborhood. Give reasons why you think a play area is necessary and point out how it would benefit everyone who lives in that area.

Question 3.

Read the following passage carefully and answer the questions that follow :

There were other boys in Manjari village, but Bisnu was the only one who went to school. His mother would not have fussed if he had stayed at home and worked in the fields. That was what the other boys did; all except lazy Chittru, who preferred fishing in the stream or helping himself to the fruit off other people's trees. But Bisnu went to school. He went because he wanted to. No one could force him to go; and no one could stop him from going. He had set his heart on receiving a good schooling. He wanted to read and write as well as anyone in the big world and so he walked to school every day.

5

A colony of langoors lived in the forest. They fed on oak leaves, acorns, and other green things, and usually remained in the trees, coming down to the ground only to play or sun themselves. They were beautiful, supple-limbed animals, with black faces, silver-gray coats and long, sensitive tails. They leapt from tree to tree with great **agility**. The young ones wrestled on the grass like boys.

10

A dignified community, the langoors did not have the cheekiness or dishonest habits of the red monkeys of the plains; they did not approach dogs or humans.

But they had grown used to Bisnu's comings and goings and did not fear him. Some of the older ones would watch him quietly, a little puzzled. They did not go near the town; because the boys threw stones at them. And anyway, the forest gave them all the food they required.

15

Coming from another direction was a second path, and at the junction of the two paths Sarrru was waiting for him. Sarrru came from a small village about three miles from Bisnu's and closer to the town.

20

They *hailed* each other, and walked along. They often met at this spot, keeping each other company for the remaining two miles.

'There was a panther in our village last night,' said Sarrru.

This information interested but did not excite Bisnu. Panthers were common enough in the hills and did not usually present a problem except during the winter months, when their natural prey was scarce.

25

'Did you lose any animals?' asked Bisnu.

'No. It tried to get into the cowshed but the dogs set up the alarm. We drove it off.'

'It must be the same one which came around last winter. We lost a calf and two dogs in our village.'

30

Wasn't that the one the shikaris wounded? I hope it hasn't become a cattle-lifter.'

'It could be the same. It has a bullet in its leg. These hunters are the people who cause all the trouble. They think it's easy to shoot a panther. It would be better if they missed altogether, but they usually wound it.'

'And then the panther's too slow to catch the barking-deer and starts on our own animals.'

35

'We're lucky it didn't become a man-eater. Do you remember the man-eater six years ago? I was very small then. My father told me all about it. Ten people were killed in our valley alone.'

'What happened to it?'

40

'I don't know. Some say it poisoned itself when it ate the headman of the village.'

Bisnu laughed. No one liked that old *villain*. They linked arms and scrambled up the stony path to school.

- (a) Give the meanings of each of the following words as used in the passage.

One word answers or short phrases will be accepted.

[3]

- (i) agility (line 11) (ii) hailed (line 21)
(iii) villain (line 41)

- (b) Answer the following questions briefly in your own words.

(i) How was Chittru different from other boys?

[2]

(ii) What was Bisnu's ambition?

[2]

(iii) What information did Sarrru give Bisnu?

[2]

(iv) How did the information affect Bisnu?

[2]

(v) Why did the panther become a cattle-lifter?

[2]

(vi) What joke does Sarrru make?

[2]

- (c) (i) In not more than 60 words describe what the narrator tells us about the behavior of the langoors. [8]

(ii) Give a title to your summary in 3 (c). Give a reason to justify your choice. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

A woman (0) _____ (wait) at an airport one night, with several long hours before her flight.

Answer : was waiting

She (1) _____ (hunt) for a book in the airport shops, (2) _____ (buy) a bag of cookies and found a place to sit. She (3) _____ (engross) in her book but happened to see that the man sitting beside her, bold as could be, grabbed a cookie or two from the bag in between, which she tried to ignore to avoid a scene. So she (4) _____ (munch) the cookies and watched the clock, as the gutsy thief diminished her stock. She (5) _____ (get) more irritated as the minutes ticked by, thinking, "If I wasn't so nice, I (6) _____ (black) his eye." With each cookie she took, he took one too. When only one was left, she wondered what he would do. With a smile on his face, and a nervous laugh, he (7) _____ (take) the last cookie and broke it in half. He offered her half, as he ate the other. She had never known she could be so angry and turned to gather her belongings. As she reached for her baggage, she gasped with surprise, there was her bag of cookies, in front of her eyes. If mine are here, she moaned in despair, the others were his, and he (8) _____ (try) to share. [4]

- (b) Fill in the blanks with an appropriate word :
- She takes a lot of trouble _____ her work.
 - Our English friends have taken _____ Indian food quite quickly.
 - He got an A _____ the Mathematics test.
 - He jumped _____ the river to save his friend from drowning.
 - Always be prepared _____ a surprise test.
 - She hid _____ the cupboard and gave everyone a fright.
 - She is fond _____ pets.
 - The brothers quarreled _____ themselves for their father's property. [4]
- (c) Join the following sentences to make one complete sentence without using and, but or so.
- We had better get ready now. We may not have time to reach the airport.
 - Mr. Liew has been sick. He has been so since he came back from Japan.
 - The debating teams were very happy. Both were declared joint-champions.
 - He escaped from the prison. He looked for a place where he could hide. [4]
- (d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.
- These windows need cleaning again.
(Begin : These windows will)
 - My mother said I could go with you only if I returned home by five o' clock.
(Use : as long as)
 - It doesn't matter which chemical you put into the mixture first, the results will be the same.
(Use : difference)
 - Who does this pen belong to ?
(Begin : Do you know)
 - Heavy rain has caused the cancellation of the outdoor garden party.
(Begin : Due)
 - I've never seen so many people in this building before.
(Begin : This is)
 - If we light the fire, the rescuers will see us.
(Begin : We will)
 - Only a few books were remaining on the shelf when we left.
(Begin : Most)

ANSWERS

Answer 1.

(a) IN THE BACKGROUND I COULD HEAR AN AWFUL COMMOTION MEN'S VOICES RAISED AND WOMEN SCREAMING...

In the background I could hear an awful commotion, men's voices raised and women screaming. I couldn't make out the exact situation but the noise was growing with each passing moment. "Why is there so much of disturbance in the background?" I asked. There was no answer from the other end. I thought that probably my voice wasn't audible and repeated myself again, "Where are you?" This time dad answered. "I'm on my way back home. There is a procession going on at Connaught Place. I will take another route and be home in another hour's time." I put the receiver down. This short conversation with dad intrigued a thought in my mind. Were these protests really serving any purpose? Or were they adding to the problem of the already frustrated citizens?

The Delhi gang-rape case had been making headlines over the past few days and for the right

reasons. A girl had been robbed of her innocence, her right to lead a secure life and above all, her life and justice had also been completely delayed. The entire nation has risen up to the cause. Candlelight marches, justice drives and protests had become a common scene at every landmark in the capital. Barricades and lathi charge on the protesters had been a routine. The national capital had turned into a blazing war zone. I had also been a party to many candlelight protests because like all others I too felt that this case was one of the many examples of breach of women security in the capital. It was essential for the common man to take up to the charge and stand up to the situation.

Today, along with my dad, there were several others out there who were facing the wrath of these justice protests. Traffic jams and route diversions were adding up to the helplessness of the common man. No one knew if their acquaintance would come back home securely. 'What was the point of carrying out such justice drives that were stirring up problems in the lives of fellow citizens?' My thoughts were interrupted by the loud doorbell. Dad was finally home and in a sound state. I thanked God for that.

**(b) BOARDING SCHOOLS ARE FAR BETTER
THAN DAY SCHOOLS FOR
THE ALL-ROUND EDUCATION OF A
CHILD.**

(1) FOR THE MOTION

Schooling plays a pivotal role in an individual's life. The knowledge and values inculcated in the school time helps every individual to become a learned and responsible citizen. What a student learns during his or her schooling leaves a long-lasting impression on his or her future life. Though every school works equally well in the direction of developing a student's all-round personality, yet these days the parents are exceedingly favouring boarding schools over day schools. And the choice seems quite apt as well. The idea of boarding schools might not catch the fancy of youngsters but it is definitely a plus point for parents. Boarding schools act quite effectively when it comes to close supervision of youngsters. They take care of youngsters at an age when they need the most attention and dedicated supervision. They understand the thought process of a young adult and tackle their behaviour in an expert manner. Discipline is the basic lesson that defines an individual's behaviour in life. At day schools, teachers focus more on spoon-fed learning and often neglect discipline but this is not in the case of boarding schools. Their rigorous schedules, closely scrutinized environment and disciplinary activities inculcate strict discipline values in students, making them better individuals. Boarding schools put a lot of emphasis on extra-curricular activities especially sports. They have dedicated sports sessions that pay heed to the all-round physical development of students. This makes the students physically active and keeps lethargy at bay.

With an array of benefits to offer, boarding schools prove to be far better than day schools for the betterment of students.

(2) AGAINST THE MOTION

Though a debate has been going on since always but then also it is quite clear that day schools are better than boarding schools.

In boarding schools, a child is bound to learn the curriculum prescribed in a disciplined manner while missing all other important learnings of life which can only be understood when staying with one's family.

A child going to a day school gets to face everything that not just goes on in their school amongst their peers but also amongst their

families and relatives. Thus, there is an all-round development which takes place.

Apart from the above, it is also important to notice issues like cost-benefit, emergency situations, etc. Day schools are more cost-effective as compared to boarding schools because in boarding schools you have to pay for all the facilities. Moreover, if there the child is stuck in an emergency situation, boarding schools are less accessible. At day schools, parents can reach out to their child as soon as possible. Another advantage day schools have over boarding schools, is a lesser fear of being ragged. In boarding schools, students are under the supervision of teachers only when they are at school and not while they are in their dormitories. This increases the chances of being ragged. The students may also fall into the company of destructive groups. Families are a part of their children's ongoing daily education. Day schools are also able to build children's roots better in their home community and take advantage of local career opportunities when they graduate.

Thus, boarding schools might look quite lucrative and attractive but day schools are much better and they actually help the child in understanding the finer nuances of life.

(c) A SCHOOL TRIP

Our school had organized a trip to Rishikesh the previous month and I had decided to join the trip along with my friends. We left for Rishikesh on Monday morning around 6:00 a.m. and reached our hotel in the evening. After dinner as per the instruction of our teachers, we took some rest.

The next day after breakfast, we left for our trekking spot which was quite an amazing experience. We then headed to a local restaurant for lunch after which we went for river rafting which was another adventurous activity for us.

It was dark when we left for our hotel and had only reached halfway when suddenly our bus broke down. The driver told us that the front left tire was punctured. We were a little worried because we couldn't arrange for any help and were stuck in the middle of nowhere. The driver left to find some garage so that he could get it fixed as soon as possible. Finally, after a couple of hours, the bus driver returned with a man who worked in a garage few kilometers away.

He was very helpful and he assisted the driver in changing the tire. While they were fixing it, we saw that there was a beautiful valley nearby. Since it was dark, we couldn't see a lot but the place was quite beautiful with cold breeze flowing across our faces. We could also see a small tea

corner a few steps away and waited there until the problem got fixed. It was midnight by the time we reached the hotel.

Once we reached the hotel, we went further to settle in our rooms and gathered back for the dinner in the hall. Our teachers had also insisted that the stranger who helped us should stay back for dinner with us. He hesitated but after much persuasion, he stayed back. Post dinner, we all went out into the open lounge for a quick cup of coffee and some chit chat. In the middle of our conversation, we looked around for the man, but could not locate him. So we inquired with the hotel staff, and we were amazed by what the staff said. They said that they did not see any person accompanying us and no one had come with us to the hotel or had dinner with us. We were shocked! I started getting goosebumps. Where did the man disappear suddenly? Why hadn't anyone other than us seen him?

On inquiring further, we came to know that it had happened with a lot of people earlier also. They had been accompanied by a stranger to the hotel, who would later suddenly disappear into thin air. No one knew who he was exactly, but everyone was terrified by this, specially me. I could not sleep for the entire night and for many nights to come.

We came back to Delhi after three days, but I have not been able to forget the episode till date. The incident still gives me goosebumps whenever I remember it.

(d) TEACHING THE ART OF CAKE BAKING

Recently one of my friends wanted to learn how to bake a cake. One might think why something like baking a cake needs to be taught. It is just eggs, flour, butter, sugar and a few more ingredients. How difficult can it be? Well, as it turns out, it can be very difficult. My friend came up to me to learn cake baking after a few miserable attempts where once the cake did not rise, once it got burnt and once it remained under-cooked in the centre. While baking a cake, one must be aware of the exact recipe, the exact method and also one must know one's oven well.

So I taught my friend how to bake a cake with a few basic steps and ensured that the cake was made properly. I taught her how to make a basic sponge cake which is the base of any cake recipe. We began by listing all the ingredients that were needed—eggs, sugar, flour, butter, vanilla extract, milk, baking powder and baking soda. I then told her the exact quantities that were required. Once all the ingredients were in place, I explained how

the batter was made and all the tricks involved to make a good batter, the consistency needed and how to correctly mix all ingredients without overmixing the batter or incorrect whipping of the egg. After my friend folded the batter in a correct manner, the next step was to teach her how to grease the cake tin and correctly line the tin with butter paper. Once the cake mixture was ready, I showed my friend the correct temperature as the oven required to be preheated first, then the cake was placed in the oven to be baked according to the set time and temperature. After some time, she took the beautifully risen golden cake out of the oven and then we checked whether it was perfectly cooked. Once cooled, we carefully removed the cake from the tin.

My friend was amazed that she could make a nice cake by following simple steps and exact measurements. The delighted look on her face was truly wonderful to see after which we both cut nice large portions of the cake and enjoyed eating the delicious sponge cake that we made.

(e)

PICTURE COMPOSITION

That day I went to spend my weekend at the lake near my house with my friends. The lake is one of the most preferred picnic spots for the people living in the nearby vicinity. I and my friends visit the lake regularly, so we packed our food and drinks and headed towards the spot. It was a sunny winter day so we were quite happy that now we can spend our day in the bright sunlight. But our enjoyment was short-lived. On reaching there, as we were about to set up our seating place we heard some kids screaming. The noise was so loud that we couldn't stop ourselves and moved towards the direction of the screams. To our surprise we saw four school kids, all between 10-14 years of age sitting on an elephant along with the master of the elephant and a helper. That was not the usual scene of an elephant ride because the animal was crossing the lake with all these six people sitting on it. The lake was deep and the water was quite cold that day so the animal was slightly uncomfortable crossing the lake. The elephant was losing its balance and this was the reason that those kids were screaming. Everybody present there was only looking at the helpless kids as even the elephant's master was unable to control the balance of his animal. Although the kids were holding each other, they seemed quite afraid. Suddenly, the elephant lost its balance and to everyone's surprise, all its passengers fell into the water. I and my friends could not restrain ourselves and jumped into the

lake for their rescue. We all were good swimmers, hence we did not find it difficult to save the kids. The elephant's master and his helper were both good swimmers so they helped themselves. By God's grace, we succeeded in our rescue mission. All kids came out of the water safely. On asking, the animal's master told that the kids insisted for a ride on the elephant and that too in the lake. Although for the elephant it was a normal routine to walk in the lake water, but with the water being so cold, it couldn't go well with it. However, everything became normal quite soon. Even the parents of the kids came to the lake and took them home all safe and sound.

Answer 2.

(a) C-187, Villa No. 4

Green Street,

Kanpur

28th February, 20XX

Dear grandpa,

Hope you're keeping well and in good spirits. My final examinations have got over and I have just returned from a weekend trip to a nearby resort with my friends. Next week after my result, I am supposed to choose my stream of subjects for the 11th and 12th standard and I have been very confused regarding the same. I don't know which stream will suit me the best so I have decided to opt for one month trial classes in the science stream.

After attending these classes, I think I will be able to cope up with science stream in a better manner. Physics and Math are the two subjects of my interest and I would love to study them in depth. But at the same time, I will have to work hard in Chemistry as I am a little weak at it. For this purpose, I've thought of joining a coaching centre where I would get proper help and would be able to cope up with the pressure.

In this stream, two other subjects are compulsory, English and Physical education or Computers out of which I have chosen Physical education. I feel that I have taken the correct decision because I love taking part in various sports activities. Also, I have a great interest in studying English and feel that I have the ability to score well in it.

I have thought of joining a coaching class for 4 days a week for physics and math so that I don't get overburdened with studies and can relax and find time for other things on the remaining three days.

I have considered the future prospects of these subjects and I think that I can really get a lot of benefit in the near future. I can choose to go into various fields of engineering.

Hopefully, I will be able to get through with my decision to study in the science stream. Hope to see you soon.

Yours lovingly,

Sahil

(b) A-4, New Lane
Palika Bazaar Street
Meerut

9th March, 20XX

The Editor

Times Newspaper,

Main Street Road,

Meerut

Subject : Need for a playground in our neighbourhood

Respected Sir,

I would like to bring to your kind notice that our neighbourhood does not have a good playground for the children to play. The population of our neighbourhood is quite sizable. Throughout I see kids of all ages playing on the crowded streets in the available space, they can get.

Children while playing on the streets are often engrossed in their play. Such situations may lead to accidents, which can be even fatal. Playgrounds are much safer as parents know where their kids are and adult supervision can be maintained.

It is essential that children get a playground with proper facilities to play as their overall growth is also affected. It also helps them make friends and develop social skills.

Parents can bring younger kids to the playground area to play on seesaws, slides, jungle gyms, etc. Adults can also use these parks for jogging and walking.

Many children have to stay at home instead of playing outside because the streets are unsafe for them to play. They become lonely and also addicted to electronics at home like TV, computers, smart phones, video games, etc., when rightly they should be out playing with their friends.

The children are in a desperate need of a good playground area with proper facilities. We all will be extremely thankful to you if a new playground gets constructed in our area.

Yours faithfully,

Rati Sharma

(Resident)

Answer 3.

- (a) (i) dexterity/Quickly (ii) greet/welcome
(iii) a wicked person
- (b) (i) Chittru was different because he preferred fishing in the stream or helping himself to fruit off other people's tree.
(ii) Bisnu had an ambition of receiving a good schooling as he wanted to read and write as well as anyone in this big world.
(iii) Sarrru informed Bisnu that there was a panther in their village last night that was driven away as the dogs had set up the alarm.
(iv) The information interested Bisnu but did not excite him because panthers were a common affair in hills. Also because, they didn't cause much harm except in winters when the food was scarce.
(v) The panther had become cattle-lifter because it was too slow to catch a deer as the panther was once wounded by one of the hunters.
(vi) Sarrru joked that the man-eater had poisoned itself when he ate the headman of the village.
- (c) (i) According to the narrator, a colony of langoors lived in the forest. They were beautiful, supple-limbed animals, with black faces, silver-gray coats and long, sensitive tails. They were extremely swift. The langoors were not cheeky and dishonest as they did not approach dogs or humans to harm them in any sense like the red monkeys of the plains. **(60 words)**
(ii) **The Beautifully Agile Langoors.**
This title is apt because the above summary describes about the agility and active behaviour of langoors who are supple-limbed and beautiful creatures.

Answer 4.

- (a) (1) hunted (2) bought
(3) was engrossed
(4) munched (5) was getting
(6) would have blackened
(7) took (8) was trying
- (b) (i) with/towards (ii) to
(iii) in (iv) into
(v) for (vi) inside
(vii) of (viii) amongst.
- (c) (i) We had better get ready now else we might not have time to reach to the airport.
(ii) Mr. Liew has been sick since he came back from Japan.
(iii) Both the debating teams were very happy as they were declared joint-champions.
(iv) Having escaped from the prison, he looked for a place where he could hide.
- (d) (i) These windows will have to be cleaned again.
(ii) My mother said I could go with you as long as I returned home by 5 o' clock.
(iii) Putting either of the chemicals in the mixture first will not make any difference, the result will be the same.
(iv) Do you know to whom does this pen belong ?
(v) Due to heavy rain, the outdoor garden party has been cancelled.
(vi) This is the first time I have seen so many people in this building.
(vii) We will light the fire so that the rescuers will see us.
(viii) Most of the books were removed from the shelf when we left.

GURUKUL

QUESTIONS

Question 1.

Write a composition (350- 400 words) on any one of the following : [25]

- Write an original short story that begins with the words: *It wasn't going to be easy she knew... but somehow she had to confront him. She took a deep breath, and walked into the room.*
- "Money causes more harm than good." Express your view either **for** or **against** this statement.
- People play a very important role in our lives. Describe in vivid detail, any **one** person and show how he/she has been a very special influence in your life.
- Modes of Communication are continually changing. What are some of these changes ? Say which one change you like best and why ?
- Study the picture given alongside. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 2.

Select **one** of the following :

[10]

- Many areas near your school have been affected by floods. You are President of your school social service club. Write a letter to the Mayor of your town/city telling him/her what you plan to do for the relief of the victims, suggest ways in which you can combine with other organizations to bring about better distribution of relief items.
- You were taken by your school to visit a place of historical interest. Write a letter to your classmate who was unable to go on the trip telling him/her about the trip, why it was important and what you gained from the experience.

Question 3.

Read the following passage carefully and answer the questions that follow :

It was a dull autumn day and Jill Pole was crying behind the gym.

She was crying because they had been **bullying** her. This is not going to be a school story, so I shall say as little as possible about Jill's school, which is not a pleasant subject. It was Co-educational, a school for both boys and girls, what used to be called a "mixed" school; some said it was not nearly so mixed as the minds of the people who ran it. These people had the idea that boys and girls should be allowed to do what they liked. And unfortunately what ten or fifteen of the biggest boys and girls liked best was bullying the others. All sorts of things, horrid things, went on which at an ordinary school would have been found out and stopped in half a term, but at this school they weren't. Or even if they were the people who did them were not **expelled** or punished. The Head said they were interesting psychological cases and sent for them and talked to them for hours. And if you knew the right sort of things to say to the Head, the main result was that you became rather a favorite than otherwise.

That was why Jill Pole was crying on that dull autumn day on the damp little path which runs between the back of the gym and the shrubbery. And she hadn't nearly finished her cry when a boy came round the corner of the gym whistling, with his hands in his pockets. He nearly ran into her.

"Can't you look where you're going?" said Jill Pole.

"All right," said the boy, "you needn't start—" and then he noticed her face, "I say, Jill," he said, "what's up?"

5

10

15

Jill only made faces; the sort you make when you're trying to say something but find that if you speak you'll start crying again. 20

"It's Them, I suppose—as usual," said the boy grimly, digging his hands further into his pockets.

Jill nodded. There was no need for her to say anything, even if she could have said it. They both knew. 25

"Now, look here," said the boy, "its no use..."

He meant well, but he did talk rather like someone beginning a lecture. Jill suddenly flew into a temper (which is quite a likely thing to happen if you have been interrupted in a cry).

"Oh, go away and mind your own business," she said. "Nobody asked you to come **barging** ? in, did they ? And you're a nice person to start telling us what we all ought to do, aren't you I suppose you mean we ought to spend all our time sucking up to them, and currying favor, and dancing attendance on them like you do." 30

"Oh, Lord !" said the boy, sitting down on the grassy bank at the edge of the shrubbery and very quickly getting up again because the grass was soaking wet. His name unfortunately was Eustace Scrubb, but he wasn't bad sort. 35

"Jill!" he said. "Is that fair ?"

"I d-don't know and I don't care," sobbed Jill. Eustace saw that she wasn't quite herself yet and very sensibly offered her a peppermint. He had one too. Presently, Jill began to see things in a clearer light.

"I'm sorry, Eustace," she said presently. 40

- (a) Give the meanings of each of the following words as used in the passage.

One word answers or short phrases will be accepted.

(i) bullying (line 2)

(ii) expelled (line 10)

(iii) barging (line 29) [3]

- (b) Answer the following questions briefly in your own words.

(i) Why was Jill crying ? [2]

(ii) Why do you think she was crying behind the gym ? [2]

(iii) Who is the 'Them' referred to in line 24 ? [2]

(iv) Why did Jill fly into a temper ? [2]

(v) Which sentences tell us that both Jill and Eustace Scrubb had suffered similarly ? [2]

(vi) When did Jill begin to see things differently ? [2]

- (c) (i) What kind of school did the children go to ? Write your answer in not more than 60 words. [8]

(ii) Give a title to your summary in 3 (c). Give a reason to justify your choice. [2]

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

My guide (0) _____ (tell) me if I wanted to meet these people I would have to walk two miles.

Answer : told

We finally (1) _____ (reach) a village where I (2) _____ (meet) a lady whose age I (3) _____ (can) not immediately make out. My translator (4) _____ (find) it difficult to interpret the lady's words because her dialect was quite different. She (5) _____ (is) a dark-skinned and dark-haired lady. She must have been around seventy years old but there was no grey in her hair. She obviously could not afford to dye her hair. So what was her secret ? Nobody (6) _____ (know). It must have been a 'secret' common to all for not one person in that whole village (7) _____ (has) a trace of grey hair ! I (8) _____ (think) about it for a long time. [4]

- (b) Fill in the blanks with an appropriate word :

(i) He was touched _____ pity when he heard the tale.

(ii) There is always a demand _____ good tailors.

(iii) The mother prevented her child _____ going out in the rain.

(iv) The baby crawled _____ the table and hid there.

(v) Once upon a time the great King ruled _____ all these villages and towns.

(vi) She is the smarter _____ the two.

(vii) Sheila insists _____ wearing that dress, although her mother thinks it is too short for her.

(viii) The teacher complained _____ him when she met his mother in the market. [4]

(c) Join the following sentences to make one complete sentence without using *and*, *but* or *so*.

(i) He lived in the city for many years. He could not find his way about.

(ii) She complained that her brother did not know anything. Her brother claimed he knew everything.

(iii) The coffee isn't strong. It won't keep us awake.

(iv) I finished my homework. I switched on the TV.

[4]

(d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.

(i) My mother left a month ago.

(Begin : It has)

(ii) Anil was wrong to lose his temper.

(Begin : Anil ought)

(iii) As soon as the Chief Guest had seated himself the play began.

(Begin : No sooner)

(iv) Rajiv said to Arjun, "Is this the book you were reading yesterday?"

(Begin : Rajiv asked Arjun if)

(v) Only a foolish person would be taken in by this trick.

(Begin : None)

(vi) Everybody has heard of Gandhiji.

(Begin : Who ?)

(vii) He will issue the cheque only when he hears from the head office.

(Begin : On)

(viii) Father will send you a message if his flight is canceled.

(Begin : Should)

[8]

ANSWERS

Answer 1.

(a) **IT WASN'T GOING TO BE EASY SHE KNEW...**

It wasn't going to be easy she knew but somehow she had to confront him. She took a deep breath and walked into the room. She was sure that through her sheer presence and unrelenting spirit, she could do this. She has overcome challenges from day one. She was born with this disability that both her legs were amputated below the knee when she was only a year old.

Her amazing spirit and drive had always helped her to compensate for the missing portion of her body. Despite her physical limitations, she pushed herself physically and mentally to succeed. Since her childhood, she had a passion for sports and in her primary school, she had participated in numerous sports, including softball and skiing.

Today in high school, she heard about a track meet for people with disabilities. She had been selected for the same but she was actually bothered by the whole idea. She had the ability to compete against 'able-bodied' athletes in other sports. And today she knew that to defy this conventional public mindset, she really had to prove herself.

She went to the coach and saw him sitting in the room along with other members of the association. The confrontation started with him not allowing her to participate in the normal meet, but this did not lower her spirits.

She began expressing her views that the athletes are limiting themselves by defining their disabilities

but determination can force one to push harder to succeed. She put in front her various medals certificates and looking at all her certificates and medals and her strong will power, he just hung his head. Instead of deterring her determination, he allowed her to compete with the abled ones. She not only won but also made a world record. This inspires us and gives us a message that true bravery is not the absence of fear, but the ability to conquer it.

(b) **MONEY DOES MORE HARM THAN GOOD**

(1) **FOR THE MOTION**

It is a common saying that 'Money is the root of all evil.' Idealists wonder why we cannot live in a world where everyone is equal, and where there is no greed or jealousy resulting from difference in status-quo. Unfortunately, they overlook the fact that our desire to have a higher status than others is the outer part of our human nature. Man's desire to rise ahead of others is too strong, and money is the only thing that man competes for. Deng Xiao-Ping said, "To get rich is glorious." It's good to have money and the things that money can buy, but it's also good, to check up once in a while and make sure that you haven't lost on the things that money can't buy. Money comes and goes but what stays are memories with your family and friends. People kill one another for money, abundance rarely brings anything other than increased sorrows. Wars, crimes, and robbery are happening because of money. More

and more people are finally realizing that money cannot bring them the happiness that they crave.

A person is not willing to sacrifice his happiness and freedom to obtain economic status. We want certain things in life, and money is necessary to enjoy them. Though, money is only needed to provide us with a safe and comfortable home, food to eat and the ability to live happily with our friends and family. Other than that one doesn't need much at all.

There are things that are far more important than having money, things like spending time with family and loved ones and a relaxed state of mind. Time is more valuable than money. You can get more money, but you cannot get more time. If one has to work fifteen hours a day and never gets time to spend with family and friends, then what good does it do ! You have not lived a perfect day, even though you have earned money, unless you have done something for someone who will never be able to repay you. While money can't buy happiness, it certainly lets you choose your own form of misery. Money is necessary, but it isn't the only thing. Once our basics are covered, we find that we have richness in being together and enjoying the simple things. We certainly have to be careful to set our priorities correctly to avoid regrets later. Money is just a means that can help to fill a host of material needs. But learning to be contented is far more important. Though money can buy status may be friendship or even save you out from a sticky situation, but all of this evaporates once your money vanishes. Only, time invested in love and quality friendship will last eternally.

(2) AGAINST THE MOTION

Many people around the world think that excess money is bad. They say money is the root cause of all evil and that wealthy people are rarely seen as happy. I don't really know who derived this condition that, if you are rich, you aren't happy. There are also people who want to be on either sides. They say having money is good, but being greedy for money is not at all moral. I know they have this explanation that money can't buy happiness and love. But do you really believe so? Are we really happy if we don't have money? The answer is obviously no. We would never be happy if we don't have money to repay the mortgage amount, to pay off the credit card debts or to buy a new car.

Everything in modern society is based on money. As the saying goes, money makes the world go around. Security is more important than

happiness and materialism influences education, too. The 'ideology' is hindering the growth of today's youth, economy and the country. The people who live under the influence of such philosophy lack the motivation of earning money, getting promoted, generating side incomes and any other activity that can bring money.

Money is a motivational factor due to which we, as world population, are able to witness growth in every industry. Money helps each country to build its strength and defend itself.

Where would we be if we had no money or how we would buy things to fulfil our basic needs. Money is never bad. It purely depends on how you use it and what consequences you face due to it. It is a means to acquire what caters to our needs and our satisfaction.

(c) THE MOST INFLUENTIAL PERSON IN MY LIFE

Over the time, there have been several people who have influenced various aspects of my life, based on their personal characteristics, accomplishments, and values. I have had numerous teachers and professors whom I respect for their patience, knowledge and intelligence, but of all the people I have encountered in my life, the person who has a special influence over my life is my father.

It takes courage, strength, responsibility, patience, acceptance, love, justice, reliability and much more and my father has shown these virtues in his everyday life experiences. My father grew in a close family environment surrounded by love. I have always admired his open mind, compassion, and sense of understanding. Though he is a very reserved man, but has a great sense of humour, and always knows how to put a smile on everybody's face. One good lesson my dad has taught me was that you most likely won't have the answer to everything, but that is what life is for, to learn from your mistakes and find the answers you are looking for. From him, I also learned how to make people listen to you when you need to speak.

I really hope someday I too can give people such good pieces of advice as my father gives to me whenever I have encountered a problem, and to be able to handle it with the same strength and grace as he does. In every aspect of my life, my father continuously pushes me to excel. Whenever I feel like giving up, or have a question or a concern, I know I can always count on him for advice. From him, I have also learned that sometimes you have to put others needs ahead of your own, but not to the point that they begin taking advantage of

you. His strength seems to be unbreakable during hard times. He stays extremely determined to accomplish anything he sets his mind into. I hold great esteem for how he stands up for what he believes in, and never steps down.

He is not only the most influential person in my life but also my guide and my hero. (e)

(d) CHANGING MODES OF COMMUNICATION

Communication has always been a crucial part of mankind's social life. It has changed according to the changes in people's living standards and all other circumstances such as technological developments. Throughout history, technology has had a huge impact on the means of communication. In the past, smoke was used as a means of communication from one mountain to another. Needless to say that only a few simple messages could be sent and received with this primitive method of smoke signals. Carrier pigeon was another means of communication to send messages further away. The letter, which was replaced with fax and e-mail consecutively, used to be a common means of communication as well. People needed to send their messages further away and faster as the world population increased and started to be globalized. This period has markedly influenced the methods of communication.

Today, we use telephones, mobiles, text messages, fax, e-mail, internet as ways of communication. The inventors and producers are always on the go to develop faster, cheaper, smaller-sized and multi-tasking gadgets for communication. The best of all these changes is the launching of social networking sites—Twitter, Facebook, MySpace, YouTube, etc. In one sense, the planet has never been more interconnected.

It's a great way for us to communicate with our loved ones from other countries without incurring expensive phone bills. Businesses also take advantages of marketing strategies in social web sites in a less expensive way. Social networks give an opportunity to branch out and interact with the friends of our friends. It widens our social circle and we can connect to possible job connections at the same time.

Facebook and Twitter have become the main communication channels and are effectively reaching to the individual people or thousands of people at the same time. It is not difficult to predict the future of communication as the trend of wireless technology seems to continue to improve. HDTV's, hologram simulators are

the clues for possibility of image transferring or the matter transferring at the speed of light in future. It won't be a surprise if one day, we will be transferred to communicate our own messages to the other places in an instant!

CHILD LABOUR

The given picture is depicting a poor girl of around ten to fourteen years of age, who is making popcorns. It indicates one of the worst forms of child exploitation which is known as child labour, a common practice of poor families hoping to pay off debts owed to landlords and local merchants or to earn their livelihood. Children are considered useful as labourers because they are easier to manage and control and perhaps most importantly, could be paid less than adults. Child labourers often work for long hours in dangerous conditions for very little money to support their families and are forced to forget their education. This practice is considered exploitative by many international organizations and is illegal in many countries. India itself is a home to a quarter of the young population of working children. It is a serious and extensive problem, with many children under the age of fourteen, working in carpet making factories, glass blowing units and fireworks factories with bare little hands. It is all due to public indifference, poverty and lack of political will. Indian law already prohibits the employment of children in 'hazardous' industries and as maids in restaurants, tea shops, hotels or roadside eateries. Yet child labour remains widespread in India.

Children are paid very low wages and are made to work for long hours in unhygienic conditions. Millions of children are being robbed of their future. Factory owners usually find loopholes and violate the law. Poverty is the main reason for child labour in India. Primary school education in India is free, yet only half of the students can read and write. The innocence of childhood is lost in the dingy furnaces.

The situation of child labourers in India is desperate. State authorities and civil society organisations should come forward to free the children engaged in labour and working as domestic help. All children have the right to lead a healthy, happy and fulfilling life. If we have courage, determination, imagination and good organisation, change is possible.

Answer 2.

(a)

St. Convent School
Mall Road,
Jaipur

8th March, 20XX

The Mayor
District Office,
Police line,
Delhi

Subject : Appeal for the relief operation for flood victims.

Respected Sir,

We are all very much saddened by the enormous damage and loss of lives caused by the recent floods in the city. We convey our thanks to all those who are working tirelessly and courageously to help those who are affected by this catastrophe, especially the work carried out by the government organisations is worth all appreciation.

Many areas near our school have been declared as one of the most affected areas. The social service club of our school would like to focus our efforts to lend a helping hand in this aspect. Our aim is to mobilise people to provide immediate relief to the flood victims. With the cooperation of local NGO'S, we can successfully raise funds by personally visiting several educational institutions in the city, through social media and through word of mouth. Our dedicated team of volunteers would request the public to contribute whatever they could. They would also help in conducting the relief operations more efficiently.

The damage caused by these floods is immense and the true scale of the tragedy hasn't really dawned upon us. Given all this, it is paramount for every one of us to do whatever is in our capacity to help our fellow citizens in their time of need.

I hope you will give our social service club a chance to put into practice what we have dreamt of and through our joint efforts carry out the relief work.

Yours sincerely,
Rahul Srivastava
President

(Social Service Club)

(b)

25, Sec-7

Malviya Nagar,
Jaipur

8th March, 20XX

Dear Raksha,

I hope this letter finds you in high spirits. How is your father now? Hope he is showing good recovery.

Agra is a historical city and our destination for the trip was Agra which you are pretty much aware of, it has been a mute spectator to the rise and fall of dynasties. Historical monuments narrate the story of its glorious past. It is famous all over the world for the Taj Mahal. The symbol of love which was built by the Mughal Emperor Shah Jahan in the memory of his wife Noor Jahan. Located on the banks of the river Yamuna, this beautiful monument, carved in white marble shimmers under the bright sun. All were quite mesmerised and awestruck by the fine carvings on the tomb of Mumtaz Mahal. It presents a wonderful sight in moonlit night and glitters like a precious stone.

The beauty was unimaginable but we were really forced to worry about the future of this heritage of India. Environmental pollution spurred by industry and automobiles has been progressively destroying the Taj Mahal's white marble surface. It is the greatest work of Mughal architecture and one of the seven wonders of the world, and India needs to protect its cultural heritage.

We also visited Fatehpur Sikri and Buland Darwaza. This trip was important because it helped to break the monotonous school routine of sitting back in the classroom for hours. It also made us learn about the royal Mughal culture and the beauty of the forts and monuments built under their reign.

It would have been great if you too could have joined us. This was not just an enjoyable trip but a trip which made us learn social skills and helped building confidence in us. We got acquainted with a completely different version of our teachers as they sang and danced along with us. We created some most amazing memories for a lifetime during this trip. I'm going to cherish these for the rest of my life. If you had been with us you also would have enjoyed it.

Convey my regards to uncle and aunt

Your loving friend,
Sakshi

Answer 3.

- (a) (i) intimidating someone to do something
(ii) forced to leave
(iii) move forcefully or roughly

- (b) (i) Jill was crying because the senior boys and girls of her school had been bullying her.

- (ii) She had been bullied by her seniors and she did not want anyone to notice her crying so she went on the damp little path which ran between the back of the gym and the shrubbery.

(iii) The ten or fifteen of the biggest boys and girls of Jill's school who liked bullying others are referred to as 'Them'.

(iv) Jill flew into a temper all of a sudden because when Eustace Scrubb came round the corner of the gym and could not make out the reason of her crying. He like a professor started giving a lecture to her, asking her that it was no use to cry because of those bullies.

(v) The following sentence suggests that Jill and Eustace had suffered similarly —'There was no need for her to say anything even if they could have said it. They both knew.'

(vi) When Eustace saw that Jill's temper was not at rest, he offered her a peppermint, which helped her to deviate from her temper and so she started seeing things in a clearer light.

- (c) (i) It was a co-educational school but the management was in weak hands. No discipline was observed in the school. The senior boys and girls were allowed to do all sorts of horrid things. The defaulters were neither expelled nor punished and were treated as interesting psychological cases by the principal.

(50 words)

(ii) "Being Bullied" will be the suitable title, as the passage deals with the emotions and mental condition of Jill and Eustace after being bullied.

Answer 4.

- (a) (1) reached
(3) could

- (2) met
(4) was finding

(5) was

(7) had

(b) (i) by

(iii) from

(v) over

(vii) upon

(c) (i) Although he lived in the city for many years, he could not find his way about.

(ii) She complained that her brother did not know anything whereas her brother claimed he knew everything.

(iii) The coffee isn't too strong to keep us awake.

(iv) I switched on the T.V. as soon as I finished my homework.

(d) (i) It has been a month since my mother left.

(ii) Anil ought not to lose his temper.

(iii) No sooner did the chief guest seat himself, than the play began.

(iv) Rajiv asked Arjun if that was the book he had been reading the day before.

(v) None other than a foolish person would be taken in by this trick.

(vi) Who has not heard of Gandhiji?

(vii) On hearing from the head office he will issue the cheque.

(viii) Should the flight be canceled, father will send you a message.

GURUKUL

QUESTIONS

Question 1.

Write a composition (350 – 400 words) on any one of the following : [25]

- "Private Tuitions are a necessary evil." Give your views either **for** or **against** this statement.
- Write an original story entitled : *Lost and Found*.
- Relate a special incident or experience in your life which you still recall with happiness.
- Children's Day is celebrated in your school every year. Write what you particularly liked about this year's celebration. What did you learn from the efforts of those who planned and organized the function ? How did you express your gratitude to them ?
- Study the picture given below. Write a story or a description or an account of what it suggests to you. Your composition may be about the subject of the picture or you may take suggestions from it; however, there must be a clear connection between the picture and your composition.



Question 2.

Select **one** of the following :

[10]

- Write a letter to the local Municipal Corporation complaining about the malaria epidemic in your city. State the causes and suggest ways to deal with the problem.
- You have just acquired an unusual pet. Write a letter to your friend telling him/her about it. Give details about the care you have to take in looking after and feeding the pet.

Question 3.

Read the following passage carefully and answer the questions that follow :

I rested for a moment at the door of Anand Bhavan, on Market Road, where coffee drinkers and tiffin eaters at their tables sat **transfixed** uttering low moans on seeing me. I wanted to assure them, "Don't fear, I am not out to trouble you. Eat your tiffin in peace, don't mind me... You, nearest to me, hugging the cash box, you are craven with fear, afraid even to breathe. Go on, count the cash, if that's your pleasure. I just want to watch, that's all... If my tail trails down to the street, if I am blocking your threshold : it is because, I'm told, I'm eleven feet tip to tail. I can't help it. I'm not out to kill...I'm too full—found a green pasture teeming with food on the way. Won't need any for several days to come, won't stir, not until I feel hungry again. Tigers attack only when they feel hungry, unlike human beings who slaughter one another without purpose or hunger..."

5

10

To the great delight of children, schools were being hurriedly closed. Children of all ages and sizes were running **helter-skelter** screaming joyously, 'No school, no school. Tiger, tiger !' They were shouting and laughing and even enjoyed being scared. They seemed to welcome me. I felt like joining them, and bounded away from the restaurant door and trotted along with them, at which they gleefully cried, 'The tiger is coming to eat us; let us get back to the school !'

15

I followed them through their school gate while they ran up and shut themselves in the school hall securely. I ascended the steps of the school, saw an open door at the far end of a verandah, and walked in. It happened to be the headmaster's room, I believe, as I noticed a very dignified man jumping on his table and heaving himself up into an attic. I walked in and flung myself on the cool floor, having a partiality for cool stone floors, with my head under the large large desk—which gave me the feeling of being back in the Mempi cave...

20

As I drowsed, I was aware of cautious steps and hushed voices all around. I was in no mood to bother about anything. All I wanted was a little moment of sleep; the daylight was dazzling. In half sleep I heard the doors of the room being shut and bolted and locked. I didn't care. I slept.

While I slept a great deal of consultation was going on. I learnt about it later through my master, who was in the crowd—the crowd which had gathered after making sure that I had been properly locked up—and was watching. The headmaster seems to have remarked some days later, 'Never dreamt in my wildest mood that I'd have to yield my place to a tiger.....' A wag had retorted, 'Might be one way of maintaining better discipline among the boys.'

'Now that this brute is safely locked up, we must decide,' began a teacher. At this moment my master pushed his way through the crowds and **admonished**, 'Never use the words "beast" or "brute." They're ugly words coined by humans in their arrogance. The human being thinks all other creatures are "beasts". Awful word!'

- (a) Give the meaning of each of the following words or phrases as used in the passage. One word answers or short phrases will be accepted.
- transfixed (line 2)
 - helter-skelter (line 12)
 - admonished (line 31) [3]
- (b) Answer the following questions briefly in your own words.
- What reassurance did the tiger give the coffee drinkers? [2]
 - In what way are tigers different from human beings? [2]
 - Why were the children delighted? [2]
 - What did the headmaster say some days later? [2]
 - What was the wag's response? [2]
 - Which sentences tell us that the tiger's owner had great respect for the tiger? [2]
- (c) (i) In not more than 60 words describe the tiger's activities from the time it followed the school children till it slept. [8]
- (ii) Give a title to your summary in 3(c). Give a reason to justify your choice. [2]
- (b) Fill in the blanks with appropriate words :
- He congratulated me _____ my great achievement.
 - The poor man is afflicted _____ arthritis.
 - She is blind _____ the faults of her husband.
 - The boss had many complaints _____ Shyam.
 - You must prepare _____ the examination.
 - She is not aware _____ the danger.
 - Ravi was accurate _____ his calculations.
 - They hid the money _____ the carpet. [4]
- (c) Join the following sentences to make one complete sentence without using *and*, *but* or *so*.
- The minister was wise. The king did not trust him.
 - We reached the port. The storm came on.
 - One should not borrow money. One should not lend money.
 - She will win the prize. She deserves it. [4]
- (d) Re-write the following sentences according to the instructions given after each. Make other changes that may be necessary, but do not change the meaning of each sentence.
- This horse is better trained than yours.
(Begin : Your)
 - The children will sit out in the garden, if the weather is cool.
(Begin : The children won't)
 - The thief ran so fast that the police could not catch him.
(Rewrite using : too.....)
 - Her attitude often annoys me.
(Rewrite using : annoyance.....)
 - The child disappeared as soon as the bus stopped.
(Begin : Hardly)

Question 4.

- (a) Fill in each of the numbered blanks with the correct form of the word given in brackets. Do not copy the passage, but write in correct serial order the word or phrase appropriate to the blank space.

Example :

We were not (0) _____ (allow) to talk during the lecture.

Answer : allowed

The children (1) _____ (sit) in a neat circle and (2) _____ (begin) (3) _____ (copy) their multiplication tables. Most (4) _____ (scratch) in the dirt with sticks they had (5) _____ (bring) for that purpose. The more fortunate (6) _____ (has) slate boards that they (7) _____ (write) on with sticks (8) _____ (dip) in a mixture of mud and water. [4]

(vi) *There is no success without effort.*

(Being : Whenever.....,

(vii) *"Please teach me to cycle" she asked her brother.*

(Rewrite in indirect form)

(viii) *The peasants regarded him as a thief and called him a villain.*

(End : the peasants)

[8]

ANSWERS

Answer 1.

(a) PRIVATE TUITIONS ARE A NECESSARY EVIL

(1) FOR THE MOTION

The word 'tuition' has become very common these days in households where children go to school. I feel that for students to be able to achieve the academic aspirations, tuitions have become an integral part of their lives.

We are sent to school so that we get to learn the basic fundamentals and thereupon, build up our knowledge. Since times immemorial, schools are equated to being temples of learning and teachers are to be respected like Gods or probably more as they are the ones who enlighten us.

There is just a slight variation to this now, that. Instead of school teachers now, it's the tuition teachers who get the respect and the people to be blamed are the school teachers.

The school teachers do not shoulder their responsibility of imparting education properly to the students.

The first and foremost reason why students run to tuitions is that the curriculum is never completed in time and in an exhaustive manner.

There are umpteen reasons for this—the increasing number of planned and unplanned holidays in the academic calendar, the increased number of extra curricular activities which the school has to provide and last of all its the incompetence of the academicians to deliver the optimum level of lectures.

The students of the current century are not ready to compromise their future and career because of these trivial issues and this has given impetus to a burgeoning tuition industry. A student feels that he has struck a good deal by joining a tuition because here not only does he cover the curriculum exhaustively, but also he has got sustained practice and extra study material.

Tuitions help to acquire that extra edge which ensures that you cruise through any examination with ease. A student is ready to toil-if he can do so with the tuition teacher, he can do it in the school as well, he just needs the right coach.

Tuitions are an inevitable part of our academic life, in fact they are the life support system for a student and there is nothing evil about it, it is our education system and our schools which are

to be blamed for it. If they gear up to provide that missing factor in school education, then the students will not need to lead such a hectic life.

(2) AGAINST THE MOTION

A lot of evils have crept into our society and the system of providing tuitions is also one of them. I definitely feel that tuitions are an evil but not a necessary one. It is an evil which is being imposed upon us and we are being made to believe that it is necessary.

It is the rapaciousness to earn more money that has been the reason for the genesis of this evil in our society. It is an ironic situation, the same teachers teach really well at their tuitions but not in school. This is the reason which forces students to join these classes.

Every parent has a desire to provide the best education for his child and safeguard his future. However, to achieve this, the parents tax themselves a lot and leave no stone unturned. It's the mad race to fulfil all dreams and desires which are left. It's the mad race for the fulfilment of dreams and desires of the parents which were left incomplete. These desires are further imposed on their children and they are then forced to join tuitions so that their ward is able to achieve what they couldn't.

Another important factor, which plays a monumental role in sending a child to tuition is that it would provide him/her with the essential coaching and help excel in his/her exams. Another reason for this is that parents do not have time for their child to guide him through studies so the tuition becomes their guiding replacement. In the end, I would like to reiterate the fact that if we look at the bigger picture then tuitions are an evil which in most cases is unnecessarily being forced upon students and they can be done away easily if parents, teachers and students get together and work against it.

(b) LOST AND FOUND

The joy of finding something is unsurpassable. We all get used to our everyday articles and seem to be attached to it. They almost assume the status of a living being that obey our command. The first pen that was gifted to me seemed to have stuck with me for centuries. One day it broke accidentally but that did not hurt me much compared to when I nearly lost my Apple iPod.

On my 10th birthday, I received a small packet as a gift from my parents. It seemed to be too light to be of genuine significance for I had expected a bicycle or at least a cricket set. But this light item didn't seem to have value at first till I opened it out and saw this little electronic gadget. Apart from playing mp3s and mp4s with crystal clear picture quality, this gizmo gave me a status among my friends. They would hear the music for a couple of minutes and I'd watch their eye dilate as they shouted, "Awesome!"

I practically lived with the iPod night and day and I became a music maniac downloading the best music of anyone's computer and hearing it with better quality of sound. But alas, one cannot always relish the realm of joy without the pain and the unspoken soon happened. One night as I was about to lie down. I searched for my iPod and realized that it wasn't there. Shock, sorrow, disappointment, hate, suspicion, and jealousy seemed to avalanche upon me as my mind whirled in a world of confusion as to where it could be. To make matters worse, I asked my parents if they had seen it and informed them that I had lost it. There was no help from those quarters but an incessant scolding almost in unison and I went to bed weeping. The next day I contacted every friend, told them of my misery. Most of them ridiculed me although, some of them were fairly sympathetic. I tried my best to visit all the places where I had been the previous day. The restaurant didn't have it and the manager seemed so unpatronising that I felt that even if he found it, he would pound it into small pieces and scatter them on the road in front. As a last attempt, I went to the florist where I had purchased a bouquet for my teacher along with my friends. To my surprise, I didn't have to make any inquiry. His young son was plugged into the iPod. My friends made such a noise that the boy was given a scolding by his father as I clung to my iPod. It was lost but now it is found. Although I am crazy about music, I have confined my iPod to my room. And I'm sure it won't find legs to walk away now.

(c) **SPECIAL INCIDENT OR EXPERIENCE
WHICH YOU STILL
RECALL WITH HAPPINESS**

What could give a child more happiness than a visit to the hills and I have always looked forward to the joyful experience of being surrounded by mountains. The scorching heat of summers is too exhausting, and youngsters are restricted to go outside. The hill station assumes the nature of a mighty natural mall where God and man, partner with each other creating the interiors, the special effects and the layout. I remember my holiday in

Nainital which was filled with excitement. The image and the fun doesn't seem to fade away. In fact, it continues with renewed strength. The experience was so vivid that it made it the most wonderful holiday of my life. The planning was so perfect that everything fitted like a mosaic, it was simply marvellous. The first thing my father did was to book a ride of the ropeway. After this, we spent our time at the Naini Lake.

The boat ride at Naini lake was fun. There were hundreds of little boats with the mountains all around. It seemed I was in the middle of a large teacup with trees all around and the very idea of being in the water, filled me with joy as I watched a few fishes pass by. No one is allowed to fish in the lake and neither are we permitted to litter it. The boatsman understands how important the lake is to their livelihood that they protect it from all human littering.

Nainital is one fun joint which caters to all the needs of a child. I went to the skating rink and enjoyed a full half an hour on the wooden floor. The time had come for the ropeway and that was the cynosure of all the experiences. Moving up in this glass cabinet was marvellous. The trees and the climb filled me with excitement. Having ascended 400 feet in 15 minutes, my joy seemed to know no bounds. I scampered across the landscape on top and relished all the goodies.

The momos and all others kinds of vegetarian and non-vegetarian dishes, lots of sundaes and mocktails were all too delicious. I also purchased small insignificant souvenirs. I returned to the room in the evening as I was tired. But what a joyful experience it was.

While leaving the hill station, I looked at the hills and said, 'I'll be coming back for more fun.'

(d) **CHILDREN'S DAY**

14th November is the day when every child seems to want something unique. The adult world may never realize it but children's day is like a mass birthday party.

Our school celebrated children's day by giving us the perfect gift i.e., going to school in coloured uniform with no bags. No work, no time table, no studying and that is the true essence of children's day. Classrooms were decorated and the children enjoyed the party with lots of jumping, shouting and dancing.

In our school, the students assembled and the teachers put on a variety of entertainment. Oh! what fun it was to see the strict math teachers cracking jokes and acting funny. Neither the joke nor the acting was of much significance but watching teachers do it was absurd enough to make us all laugh. The teachers put up a play which was really funny. They kept forgetting their

parts and making up atrociously long dialogues. They performed a group dance which was of course wonderful. Everybody did what they wanted except for the dance teacher who seemed to be getting angry because no one adhered to what she had taught them.

The classroom function was a little more private with the tables and chairs pushed to the sides and a dancing floor prepared for the students. There was so much to eat and drink but no one felt hungry. The mere joy of being able to enjoy this kind of fun in school seems truly out of the world. The principal and teachers had put up great efforts to plan this day. The teachers were staying back after school for practice. The helpers of the school had seen to it that the school was well decorated and a large music system with mega speakers was installed for the kids who wanted to dance in the yard.

Children's day was a fun day. Before we left the vicinity of our school with our bodies all tired with our high energy dances and our voices hoarse from the screaming and shouting, we went to Principal sir and thanked him for the spectacular day. We also thanked all our teachers before leaving the school for making it the best children's day ever.

(e)

PICTURE COMPOSITION

'Water...water everywhere but not a drop to drink.' The squeamishness of city life fades away as we are surrounded by things that go beyond the natural course of human life. Life in Calcutta seems to move pretty smoothly for everyone till the rains descend and make commuting hazardous.

The rains are the only time when vehicles lose their power of travelling at breathtaking speed and negotiating curves. The best mode of transport during this season is the cycle or hand-rickshaw. Believe it or not in these trying times when everything becomes expensive and the schools need to shut down because of water logging and flood-like situations, the hand-rickshawalla actually call it their season. They earn more than eight to ten times of their usual wages and some of them thank the God of rain for this bounty.

Mukesh, a hand-rickshaw puller had been out of luck for many days. He wasn't able to make enough money for there was much competition on his route. He was a native of Calcutta but he always found that people from outside came and dominated the rickshaw pulling trade. They would settle for much less and youngsters hardly thought about wages and the labour involved. They came from poor villages and seemed to be satisfied with the little they had. They didn't have

families to support neither were they anxious about living quarters. Mukesh needed the money and he thought that things were getting tough.

Although it had rained and the roads were flooded, he wasn't getting proper customers. At the corner of the road, he saw a lady stranded. He was in no mood of helping her. She looked poor and worried with an umbrella, and finally, he offered help to her. She had left her home and was going to meet her son. When the auto driver dislodged her from his vehicle she could not wade the flooded waters. Mukesh forgot about his poverty and allowed this lady to sit in his rickshaw. She said she would pay but he didn't really believe her. It took him more than an hour to take her through the flooded water to her son's house. There the family had been waiting anxiously for their mother. They had tried all means of communication but couldn't find her. On seeing his mother arrive, the young boy and his family were extremely happy. Mukesh did not expect anything but her delighted son gave him a five-hundred rupee note with tears in his eyes and seemed to be most grateful. And that day Mukesh realized 'God sees and rewards'.

Answer 2.

(a) 23, Bhawna Vihar,
M. G. Road,

Agra

2nd March, 20XX

The Chairperson

Municipal Corporation of Agra.

M. G. Road.

Agra-282 002.

Subject : Rampant breakout of Malaria

Respected Sir,

This is to draw your attention to the breakout of malaria in the city as the number of cases are on a constant rise. The local newspapers have also been highlighting this epidemic on a daily basis.

Malaria is caused by mosquitoes which breed in dirty and stagnant water especially in overhead tanks, open water ditches and water cooler. Drains and pools are also the major breeding grounds for mosquitoes.

I suggest that a campaign must be launched from your end to eradicate this menace. A newspaper advertisement to make people aware, as well as help in fighting the epidemic, will be appreciated. People should be made aware that all stagnant water should have a little oil poured into it to reduce surface tension, keep windows closed, use mosquito repellents, etc. The corporation should also spray insecticide around the city preferably,

in the evening and arrange for cleanliness patrol in the city. I hope that my humble suggestion will give a careful thought for the benefit of the city so that malaria can be dealt with.

Thanking you,

Yours faithfully,

Benjamin Clarence

(b) 22, Bhawana Vihar.

M. G. Road

Agra

2nd March, 20XX

Dear Mukul,

I hope that this letter finds you in the best of health and spirit. You will be delighted to know that I have received a turtle as a pet. My father's friends from Japan visited us and one of them gifted me this turtle. I have named it Noddy but I'm still not quite sure whether it is male or female.

Noddy lives in the pond of my garden and requires great care as it can fall prey to the eagles. The water needs to be regularly filtered and we feed it fish food. It eats almost anything but it requires lots of sunlight. I play with it in the garden and it now recognizes me. Noddy is so famous in the colony that now everyone knows about it. We also have regular visitors who like to catch a glimpse of Noddy in the pool or on the adjoining sand bank which we made for it.

Do visit me during the summer vacations and I'm sure you will enjoy yourself with Noddy. Convey my regards to uncle and aunt.

Your loving friend,

Amit

Answer 3.

- (a) (i) astonished (ii) hurriedly
(iii) warned.
- (b) (i) The tiger reassured the coffee drinkers that he would not hurt or disturb them. He just wanted to watch them.
(ii) Tigers only attack when they are hungry to satisfy a need. Humans unlike tigers kill each other without a definite reason.
(iii) The children were delighted because the school was hurriedly closed. They enjoyed the excitement of a tiger in the school and loved being scared.

(iv) The headmaster said that he had never dreamt that a tiger would dislodge him from his office.

(v) The wag's response was that the tiger could maintain better discipline in the school among the boys than the headmaster.

(vi) "Never use the words 'beast' or 'brute'." This sentence communicates that tiger owner's respect for the tiger.

- (c) (i) The children seemed to welcome the runaway tiger to school. It felt like joining them in their game and climbed the steps of the gate. The tiger entered the headmaster's office and since the floor was cool and the headmaster had jumped in to the attic the tiger had put his head, under the table and he went to sleep.

(60 words)

(ii) The title 'Tiger's Day Out' suits the passage as it talks about a zoo tiger who came into a school quite innocently.

Answer 4.

- (a) (1) sat (2) begun (3) copying (4) scratched (5) brought (6) had
(7) wrote (8) dipped
- (b) (1) for (2) with (3) to
(4) against (5) for (6) of
(7) in (8) under
- (c) (i) Although the minister was wise, the king did not trust him.
(ii) As soon as we reached the port, the storm came on.
(iii) One should neither borrow nor lend money.
(iv) She deserves to win the prize.
- (d) (i) Your horse is not that well trained as this one.
(ii) The children won't sit out in the garden unless the weather is cool.
(iii) The thief ran too fast for the police to catch him.
(iv) Her attitude often causes annoyance to me.
(v) Hardly did the bus stop, than the child disappeared.
(vi) Whenever there is effort, there is success.
(vii) She requested her brother to teach her to cycle.
(viii) He was regarded a thief and was called a villain by the peasants.

••

QUESTIONS

(Two Hours)

Answers to this paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

Attempt five questions in all from only **three** text books.

You must attempt at least **one** question from each of the **Sections A, B and C** and **not more than two other questions** from the same books you have already compulsorily chosen.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A - DRAMA

Answer one or more questions from **only ONE** of the following plays :

The Merchant of Venice
or
The Mousetrap

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Launcelot : But, I pray you, ergo, old man, ergo,
I beseech you, talk you of young Master Launcelot ?

Gobbo : Of Launcelot, an't please your mastership.

Launcelot : Ergo, Master Launcelot. Talk not of Master Launcelot, father; for the young gentleman, according to Fates and Destines, and such odd sayings, the Sisters Three and such branches of leaning, is indeed, deceased; or as you would say in plain terms, gone to heaven.

- (i) What information does Gobbo seek from Launcelot at the beginning of this scene ? [3]

What does Launcelot say has happened to Gobbo's son ?

- (ii) Who are the 'Sister Three' ? [3]
What role were they thought to play in the lives of humans ?

- (iii) Who was Launcelot's master ? [3]
What gift had Gobbo brought him ?
What does Launcelot want him to do with it ?

- (iv) What reasons does Launcelot give for wanting to leave his present master's service ? [3]
Whom does he wish to serve instead ?

- (v) Why does Gobbo have trouble recognising Launcelot ? [4]
What purpose does this scene serve in the context of the play ?

Question 2.

Read the extract given below and answer the questions that follow :

Shylock : To bait fish withal. If it will feed nothing else, it will feed my revenge. He hath disgraced me and hindered me half a million, laughed at my losses, mocked at my gains, scorned my nation, thwarted my bargains, cooled my friends, heated mine enemies-and what's his reason ? I am a Jew. Hath not a Jew eyes ? Hath not a Jew hands, organs, dimensions, senses, affections, passions ? Fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means, warmed and cooled by the same winter and summer as a Christian is ? If you prick us, do we not bleed ?

- (i) Who is 'He' ? [3]
What does Shylock want from him ?
What does Shylock mean by 'to bait fish withal' ?

- (ii) Explain in your own words any **three** ways in which 'he' had wronged Shylock. [3]

- (iii) According to Shylock, in what **other** ways did Jews resemble Christians ? [3]

- (iv) How does Shylock use Christian example to justify his desire for revenge ? [3]

- (v) The given extract reveals two distinct emotions that Shylock experiences. [4]

What are they ?

Give one reason to justify each of these emotions.

Question 3.

Read the extract given below and answer the questions that follow :

Portia : The quality of mercy is not strained;
It droppeth as the gentle rain from heaven
Upon the place beneath : it is twice blessed;
It blesseth him that gives and him that takes :
'Tis mightiest in the mightiest', it becomes
The throned monarch better than his crown:

- (i) Where does this scene take place ? [3]
Why is Portia here ?
Why does Bassanio not recognise her ?
- (ii) To what is mercy compared in these lines ? [3]
Why is mercy said to be 'twice blessed' ?
- (iii) Explain the lines : [3]
'Tis mightiest in the mightiest; it becomes
The throned monarch better than his crown ?
- (iv) Later in her speech Portia mentions a sceptre. What is a sceptre ? [3]
How, according to Portia, is mercy above the 'sceptred sway' ?
- (v) To whom are these words addressed ? [4]
What does the person say in response to Portia's words ?
Portia is seen as the dramatic heroine of the play. Using references from the text mention any two aspects of her character that appeal to you most.

SECTION B - POETRY

Answer **one** or **more** questions from this section.

A Collection of Poems

Question 7.

Read the extract given below and answer the questions that follow :

Bangle sellers are we who bear
Our shining loads to the temple fair....
—The Bangle Sellers, Sarojini Naidu

- (i) Why does the poet use the word 'delicate' to describe the bangles ? [3]
How is 'rainbow-tinted circles of light' an appropriate description of bangles ?
- (ii) Explain the following phrases from the poem in your own words : [3]
- Shining loads
 - Lustrous tokens of radiant lives
 - For happy daughters and happy wives.

(iii) The poet uses several images of sight and sound to create a musical effect in the poem. Mention any **three** example of these images. [3]

(iv) What are the emotions that the poet associates with a bride on her wedding day ? What colours are the bangles on her wrist that reflect these emotions ? [3]

(v) What colours does the poet associate with : [4]

(a) a maiden

(b) a middle aged woman

How does the poet describe the thoughts and concerns of women in **both** these stages of life ?

Question 8.

Read the extract given below and answer the questions that follow :

But a caged bird stands on the grave of dreams
His shadow shouts on a nightmare scream
His wings are clipped and his feet are tied
So he opens his throat to sing.

—I Know Why the Caged Bird Sings, Maya Angelo

- (i) In the context of the poem who is a 'free bird' and who is a 'caged bird' ? [3]
What mood do the above lines convey ?
- (ii) How does a free bird live his life ? [3]
What are the things he thinks of and dreams about ?
- (iii) What does the caged bird sing about ? [3]
What are the restrictions that a caged bird has to deal with ?
- (iv) What do you understand from the title of the poem ? [3]
What do you like about the poem ?
- (v) Explain what you understand by the following lines: [4]

- '.....a bird that stalks
down his narrow cage'
- 'he names the sky his own'

Question 9.

Read the extract given below and answer the questions that follow :

Abou Ben Adhem (may his tribe increase !)
Awoke one night from a deep dream of peace,
—Abou Ben Adhem, Leigh Hunt

- (i) What did Abou Ben Adhem see when he woke from a deep sleep one night ? [3]
- (ii) What did Abou Ben Adhem ask the angel ? [3]
What was the angel's response ?

- (iii) What did Abou request the angel to do when he learnt that his name did not appear among the names of those who loved the lord ? [3]
What does this reveal to us of Abou Ben Adhem's character ?
- (iv) When and how did the angel appear to Abou Ben Adhem again ? [3]
What did the angel show Abou this time ?
- (v) What does the poet mean by 'May his tribe increase!' ? [4]
Why do you think he says this ?
What is the central message of the poem ?

SECTION C - PROSE

Answer one or more questions from **only ONE** of the following books that you have studied.

A Collection of Short Stories

or

Animal Farm

or

The Call of the Wild

A Collection of Short Stories

Question 10.

Read the extract given below and answer the questions that follow :

"Well, Mr. Easton, if you will make me speak first, I suppose I must. Don't you ever recognize old friends when you meet them in the West ?"

The younger man roused himself sharply at the sound of her voice, seemed to struggle with a slight embarrassment which he threw off instantly, and then clasped her fingers with his left hand.

"It's Miss Fairchild," he said, with a smile. "I'll ask you to excuse the other hand; 'it's otherwise engaged just at present'".

- (i) Describe Miss Fairchild and Mr. Easton. [3]
- (ii) Where does the above conversation occur ? [3]
Why was Mr. Easton embarrassed when Miss Fairchild addressed him ?
- (iii) How was Mr. Easton's other hand 'otherwise engaged' ? [3]

How does Miss Fairchild react when he raises his right hand to show her what he meant ?

- (iv) How does Miss Fairchild feel about Mr. Easton ? [3]
How does she try to convey these feelings to him ?
- (v) The story has a surprise ending. How is the surprise revealed to the reader ? [4]

Question 11.

Read the extract given below and answer the questions that follow :

So the little girl walked about the streets on her naked feet, which were red and blue with cold. In her old apron she carried a great many matches, and she had a packet of them in her hand as well.

- (i) Who was 'she' ? [3]
What can you conclude about her condition from the above description ?
- (ii) What time of the year was it? Why did she not want to go home ? [3]
- (iii) What did she use the matches for? What happened when she lit the first match ? [3]
- (iv) Whom did she love dearly ? What did she say when this person appeared before her ? [3]
- (v) What happened to the little girl at the end of the story ? [4]
Would you consider this a happy ending or a sad one ?
Give one reason for your answer.

Question 12.

Answer the following questions with reference to Norah Burke's short story, "The Blue Bead".

- (i) Describe Sibia's experience at the Bazaar. [4]
What were the things that filled her with wonder ?
- (ii) Who were the Gujars? Give a brief description of their lifestyle. [4]
- (iii) Describe how Sibia rescued the Gujar woman from the crocodile. [8]
What did Sibia regard as the highlight of that fateful day ?
What does this tell us about Sibia ?

ANSWERS

SECTION-A

Answer 1.

- (i) Old Gobbo asks the way to Shylock's house because he wants to meet his son Launcelot who is working there. The young man says that Gobbo's son is deceased or in simple terms gone to heaven.

- (ii) According to Greek mythology, the three sisters represent fate or destiny. They were Clotho, who spins the thread of life, Lachesis, who measures the thread of life and Atropos, who cuts the thread of life. They were regarded as the decider of the course of the human's life. The belief is the three sisters of fate after every

birth, visit the child and determine their fate to see how to spin their lifeline.

- (iii) Launcelot's master is Shylock, the Jew. The present is a dish of doves. Launcelot wants the gift to be given to Bassanio, a gentleman, whom he wants to serve.
- (iv) Launcelot's main objection in working for Shylock is that he is a Jew. Since a Jew is miserly, Launcelot is famished throughout the day so much so that his ribs can be counted. Another reason is that he has met Bassanio, a Christian gentleman who provides handsome liveries. He also feels Bassanio has God's grace.
- (v) Gobbo cannot recognise his son as he is sand-blind. Besides, it has been a long time since he has seen his son who is now grown up with a beard and hair on his chest. Also, Launcelot was dressed very well and spoke with the air of a gentleman. After the serious scene at Belmont, comes the comic scene of Launcelot and his father. This works as dramatic relief and adds fun to the play. Launcelot fooling his blind father and also using impressive words that do not match the context evoke pure laughter. First, he tells Gobbo in a witty manner that his son is dead and then announces he is alive. Gobbo touches his face and compares his beard to the tail of a horse. Most of his jokes are meant to entertain the groundlings but he also cracks witty comments that can be appreciated by the more intellectual ones. He also throws light on Shylock's miserly character by saying that he does not get enough to eat. A sense of racial prejudice is also introduced through his words as his main reason to leave is that Shylock is a Jew.

Answer 2.

- (i) 'He' is Antonio, the merchant of Venice. Shylock wants a pound of flesh to be cut from any part of his body which pleased Shylock, as per the forfeit. 'If it will feed nothing else, it will feed my revenge'. He would use Antonio's flesh for baiting fish, showing his complete disdain for the corpse of his enemy. If the fish aren't interested in eating the 'bait,' Antonio's death will feed Shylock's dire need for revenge against him.
- (ii) He had disgraced Shylock, prevented him from earning half a million through usury, laughed at his losses, mocked at his gains, scorned his nation, thwarted his bargains, turned his friends against him, riled up his enemies—just because he is a Jew.

(iii) According to Shylock, Jews and Christians have similar eyes, ears and other organs. A Jew bleeds just as a Christian when wounded. In the same way, a Jew has feelings just as Christians. They also laugh when they are tickled. They are fed with the same food, hurt with the same weapons, subject to the same diseases, healed by the same means and warmed and cooled by the same winter and summer as a Christian is. They also die when poisoned or seek revenge when wronged.

(iv) Shylock feels deeply pained by the inequality. He says when a Jew offends a Christian, the Christian's kind and gentle reaction is revenge. So, if a Christian offends a Jew, the punishment that the Jew will come up with, if he follows this example of the Christian, is revenge. Shylock says that Christians have set up examples of wickedness and cruelty. He has followed the same example and wishes to take a greater revenge upon the Christian, Antonio.

(v) Shylock is gripped with feelings of revenge. He feels angry with Antonio as he had been instrumental in causing loss to Shylock at Rialto. Also, the Christian has insulted by calling him a dog and spitting on him. He has lost friends and gained enemies because of Antonio and he cannot ever forget the mockery and insults he has undergone. On the other hand, he is pained by the feeling of anti-semitism prevalent during the times. He feels Antonio hates him because he is a Jew. So, he expresses his anguish through his monologue in which he says there is no difference between a Christian and a Jew physically or emotionally. Both feel pain and anger and react similarly to changes of weather. He seems to be really pained by this social inequality.

Answer 3.

- (i) The scene takes place in the courtroom in Venice. Portia is here to argue the case on behalf of Antonio. Bassanio cannot recognize her as she is dressed as a lawyer, hiding her femininity.
- (ii) Mercy is compared to the gentle rain from heaven. It blesses the person who shows mercy by way of getting happiness in the generous act, and the one who is at the receiving end, also benefits from the act. So, it is 'twice blessed.'
- (iii) Portia says it is the best quality of a human. The powerful ruler becomes more powerful if instilled with this noble quality. It is the most powerful weapon that a powerful person can possess. It suits the king better than his crown which is the

symbol of sovereignty. In fact, he acquires the status of God, the supreme power.

- (iv) Sceptre is the insignia of kingship. It represents power. But the quality of mercy can sway power more effectively since it appeals to the heart of the subjects which make them love the ruler and owe allegiance to him without fear or compulsion.
- (v) These words are addressed to Shylock who refuses to take back his claim. He says the law is on his side and he need not give any reason for his refusal. He insists on the justice of his cause. On the contrary, he is determined to ensure that the terms of the contract he made with Antonio are fulfilled to the letter.

Portia is gracious, with all the noble qualities a woman should have which endear her to all. She has tremendous love in her heart that prompts her to do everything that can make her husband Bassanio happy. It is her love and faithfulness which makes her follow the instructions of her father. Another quality that makes her stand out is her extraordinary intelligence which makes her quick-witted enough to win the case for Antonio. Her argument that Shylock can take a pound of flesh without dropping a drop of blood is a clever argument that turns the forfeit in favour of Antonio.

SECTION-B

Answer 7.

- (i) When she describes them as 'delicate', as they are made of glass and easily breakable and they should be handled with infinite care. This also enhances the feminine sides of their wearers who are the daughters and brides of the family. By "rainbow-tinted circles of light," she implies the bangles are visually attractive ('bright') and colourful ('Rainbow-tinted'). The metaphor 'circles of light' implies that the shape of bangle is circular and her bangles have perhaps a magical touch about them. This captures the cheerfulness and attractive qualities that make the young wearers enchanting and beautiful. The variety of colours imply different phases of the life of a woman.
- (ii) In the poem, 'shining loads' refer to the loads of bangles which the bangle sellers carry happily. The bangles are called 'lustrous tokens of radiant lives' because the multicoloured bangles are symbolic of bright and happy lives of 'happy daughters and happy wives'.

"For happy daughters and happy wives" refers to girls and women at different stages in their lives. It suggests the bangles are for all, including the young maidens and the married ladies.

- (iii) Visual imageries are portrayed in musical terms. The auditory imageries are created by the tinkling sound of the bangles that are compared to the laughter and cries of the brides.

Tinkling, luminous, tender, and clear,
Like her bridal laughter and bridal tear

Visual images of mountain mist reflect the purity of maidens :

Some are meet for a maiden's wrist,

Silver and blue as the mountain mist,

A vibrant image is created by comparing the bangles to golden corn fields :

Some are like fields of sunlit corn,

Meet for a bride on her bridal morn.

- (iv) The yellow colour of corn is auspicious to begin the journey of a wife. It shows the hope and aspirations of a bride. The red ones reflect the flame of marriage fire suggesting all the desires of her heart. The tinkling sound of the sparkling bangles project the tender love bringing out clearly her sincere laughter at beginning of the new role of a wife and the sadness of leaving her parental home.

- (v) Silvery and blue as the mountain mist is the colour of purity suitable for a maiden. The pink ones "flushed like the buds" are likened to her budding dreams and the green ones refer to her youth and freshness that are aglow like the bloom of newborn leaves.

On the other hand, mellow or subdued purple and gold flecked grey are the ones that suit mature women who have "journeyed through life midway". They reflect their glory and pride for having nurtured fair sons, looked after household chores, and worshipped the family deities along with their husbands.

Answer 8.

- (i) The poem 'Why the caged bird sings' is a reflection on social disparity, and the ideals of freedom and justice. Angelou presents the inequality of justice seen in the society of her times which differentiated between the African-American community and its White American counterpart. Here the 'free' bird refers to the White Americans who were free to make life choices. While

the 'caged bird' referred to the black African Americans whose life was restricted by rules and laws were imposed on them. Maya Angelou can be regarded as the caged bird in the poem, but she is also the representative of the 'blacks'.

The agony and cruelty of the oppression of marginalized communities and their anger expressed through the civil rights movement is the context of the poem.

(ii) The first stanza of the poem describes a free bird who is able to choose where he goes. When he rides the wind, enjoys the sun, and "dares to claim the sky", he is the ruler of his own destiny. He thinks about the big fat worms as he cuts through the breeze and trade winds. He spreads his wings as though he is the proprietor of the whole universe and sees the world and everything in it, as his own.

(iii) A caged bird sings of freedom which it cannot enjoy. The bird moves angrily and silently in a small cage and can barely see through either the cage bars or his own anger. His wings are cut so he cannot fly and his feet are tied together. He is restricted to enjoy the happiness of a free human. He cannot see the world outside, nor freely express his thoughts and feelings, nor have a say in matters that matter.

The oppression of the cage doesn't just keep the bird captive; the captivity changes the bird, and in doing so, robs the bird of its very self.

(iv) The title suggests the reason why the caged bird sings. It sings of its anguish at not being able to see beyond the cage. It is not only physical captivity but also mental agony as its mental sight is also limited by the anger it feels in the oppressing environment. This might be seen as the poet's message to raise our voice, to express ourselves even though the strong wants to suppress the weak and to never ever give up, no matter what situation we are in.

The contrast between freedom and oppression is expressed effectively in words that convey joy and misery. The juxtaposition brings out clearly the feelings of the poetess, who herself has been a victim of oppression. It subtly asserts that the anguish forced on black communities by white oppression must be acknowledged. It is the intense desire reflected through apt words that appeals to me the most.

(v) The caged bird struggles to be free but in vain. The cage is narrow and its confining bars fill it with rage. It is angry with its situation. Its wings are clipped, that is, its freedom is forcibly taken away. Wings that enable the bird to fly are associated with freedom. Its feet are tied. A bird tied to the ground represents an image completely opposite to its true nature, confirming the alienation from the actual world. But the most important thing is that despite being in this utterly despondent predicament, the caged bird 'opens his throat to sing.' That seems to be his only joy and achievement.

However, reflecting its freedom, the free bird is the master of the sky. It dares to think of another breeze and the winds of change. It eagerly finds the "fat worms waiting on a dawn-bright lawn" even as he claims the sky is his own. This is exactly what the caged bird wants to do.

Answer 9.

(i) Abou woke up to see a room flooded with moonlight. An angel was writing in a book of gold.

(ii) "What writest thou?" asked Abou—The vision raised its head, and answered, "The names of those who love the Lord."

He asked whether his name is in the list and the angel said "Nay, not so".

Abou cheerily requested to write his name as "One that loves his fellow men".

(iii) He requested the angel to write him as one that loves his fellow men. It reveals that he is selfless in his approach; he loves his fellowmen more than himself. He sees God in them.

(iv) The next night the angel appeared again "With a great wakening light",

He showed the names whom God has blessed. Surprisingly, Abou found his name at the top of this list.

"And lo! Ben Adhem's name led all the rest".

(v) The poet says there should be more lovers of fellow beings like Abou Ben Adhem. The world is full of egotistic and egocentric beings and there should be more humane characters. The central message of the poem is love and care for all. This endears to God more than selfish prayers and show of piety.

The central idea of the poem "Abou Ben Adhem" is that God blesses and loves those who love and serve their fellowmen. If one wants to please God, one must serve one's brothers.

SECTION C

Answer 10.

- (i) Miss Fairchild is described as a very pretty young woman, elegantly dressed and surrounded by luxurious comforts of an experienced traveller. She is an eloquent speaker with a very sweet voice and has rounded cheeks. Mr. Easton is said to be a handsome young man with a bold, frank countenance and manner.
- (ii) The conversation occurs in a railway coach on the east bound B & M Express at Denver. The young man is embarrassed because he is handcuffed like a criminal and has to shake the hand of the lady with his left hand. His discomfort comes from the fact that the lady once knew him as a gentleman.
- (iii) The right hand of the man was handcuffed or bound at the wrist to the left hand of his companion. The lady is shocked. The glad expression at meeting the young man changes to 'bewildered horror'. The glow fades from her cheeks and her lips part in distress.
- (iv) The young lady is attracted to the young man whom she had met in a more friendly environment. She is even fancying a married life and subtly conveys that she does not mind settling in the West. She adds the weather agrees with her and money is not everything. She implies that she may be happy being a Marshal's wife.
- (v) The ending of the story takes the reader by surprise. The handsome young man turns out to be a criminal and the roughly-dressed man, the Marshal. This happens because the rough man has a heart of gold and wants to save the lady from a heartbreak; so he pretends to be the prisoner. When the lady is about to get down, the actual Marshal takes Easton for a smoke. One passenger who has heard the conversation tells the other that the Marshal is a good person. The other remarks he looks too young to be in that position. Then the first speaker asks him in surprise whether he has ever seen an officer handcuff a prisoner to his right hand. Thus, the reader comes to know that Easton is the prisoner and the rough, heavily built, glum-faced man is the Marshal.

Answer 11.

- (i) The little girl in the story, 'The Little Match Girl' is referred to as 'she'. She was poor and walked bareheaded and barefooted. So, her feet were red and blue with cold. The packets of matches in her apron and hand suggest she sold matches for

living. Her 'old' apron also showed that she came from a desperately poor home. She was shivering and hungry; a picture of misery!

- (ii) It was New Year's eve, the peak of winter. The little girl had not sold any match and did not have a penny. She was afraid that her father would beat her for the same if she went home. Besides, there was no protection from cold at home too, as the roof had many holes in it and wind whistled through them.
- (iii) She lit the first match to warm herself but in the light, she saw a big iron oven with polished brass knobs ornaments. She felt its heat warming her feet. But as she stretched her feet, the flame went off and she found herself sitting with a burnt matchstick.
- (iv) She loved her grandmother dearly who was no more. She was the only one who ever loved the little girl. She pleaded with her granny to take her along with her before she vanished like the stove, the roast goose and the Christmas tree.
- (v) She froze to death. The dawn saw her sitting huddled in the corner of two houses, with rosy cheeks and a smile on her face. She was holding a half burnt packet of matches. It is sad to think that a little girl died because she was poor and had no one to take care of her. The tragedy deepens because it happened on a New Year's Eve, when all were celebrating with plenty. But the smile on her blissful face makes the reader feel happy that she had escaped the misery of this uncaring world and escaped into a world of heavenly joy and gladness.

Answer 12.

- (i) Sibia had visited the bazaar of the little town at the railhead. She had walked through milling people, the dogs and the monkeys full of fleas, and heard the bell of sacred bull. She was amazed at the display of green and magenta sweetmeats, 'the brilliant honey confections'. Then there was the cloth stall, satins and silks, tin trays and mirror work sari, a chest with gems and a box that had a chicken jumping out. All these filled her with wonder.
- (ii) Gujars were the nomadic graziers who changed their habitats when there was no grass to feed the cattle and they were not able to sell their white butter and milk. The Gujars were 'junglis' born and bred in forests. They get their living from animals, grass and trees. There was a hard life, fetching water from faraway places, cutting grass

with sickles, gathering firewood, and putting dung to dry. Their wealth was determined according to the number of cattle they possessed or the large silver rings that they wore, made from melted coins.

- (iii) The crocodile attacked when the Gujar woman was filling water. Its jaws closed on her leg and she slipped on the bone breaking stone. She was hanging on to a log, when Sibia saw her. She sprang. She came "leaping like a rock goat", from boulder to boulder. In a moment, she was beside the shrieking woman. The crocodile slapped its tail and the water rose high. But this did not deter the brave girl. She aimed her hayfork into the eyes of the crocodile. One prong went right in. The huge animal rocked in convulsions, crashed back exploding the water and disappeared in 'bloody foam'. She got her arms around the fainting woman and dragged her from the water. She stopped her wounds with sand and bound them with a rag. Thus, she helped her to reach the encampment and some men carried her for treatment.

For Sibia, the highlight was accidentally procuring the blue bead with which she could make a necklace. The bead was beautiful 'with sunlight shuffling in it like gold dust'. It was even pierced ready for use. Her joy knew no bounds.

Sibia comes across as a brave girl who had the courage to fight a violent crocodile single-handedly. Danger was natural to a forest girl like her and she did not think twice about the brave deed she had done. In fact, she did not even think about how she endangered her life to save the Gujar woman. She charged like a rock goat and leapt over the slippery boulders to reach the victim in time. Focus, determination, sterling courage were the hallmarks of her personality. Completely matter of fact, she did everything to save the woman's life. She displayed immense common sense and equanimity of mind. Her courage was heroic. However, she at heart was an innocent little girl, no different than any other girl of her age. Despite all her bravery, she was only thrilled about the bead she got. "I found a blue bead for my necklace, look!"



GURUKUL

QUESTIONS

SECTION A - DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Bassanio : To You, Antonio,
I owe the most, in money and in love;
And from your love I have a warranty
To unburden all my plots and purposes
How to get clear of all the debts I owe.

Antonio : I pray you, good Bassanio, let me know it;

- (i) Describe Antonio's mood at the beginning of this scene.
State any two reasons that Antonio's friends, who were present, gave to explain his mood. [3]
- (ii) What promise did Antonio make to Bassanio immediately after this conversation ? [3]
- (iii) What did Bassanio say to Antonio about 'a lady richly left' in Belmont ? [3]
- (iv) Why was Antonio unable to lend Bassanio the money that he needed ? [3]
- (v) What does the above extract reveal of the relationship between Antonio and Bassanio ? [4]
Mention one way in which this relationship was put to the test later in the play.

Question 2.

Read the extract given below and answer the questions that follow :

Bassanio : A gentle scroll. — Fair lady, by your leave;
(Kissing her)
I come by not, to give and to receive.
Like one of two contending in a prize,
That thinks he hath done well in people's eyes
Hearing applause and universal shout
Giddy in spirit, still gazing, in a doubt
Whether those peals of praise be his or no;

- (i) Where did Bassanio find the 'gentle scroll' ?
What 'prize' had Bassanio just won ? [3]
- (ii) Explain why Bassanio said he felt 'Giddy in spirit, still gazing, in a doubt'. [3]

** Questions are not given due to change in the present syllabus.

- (iii) Shortly after this exchange, Portia gave Bassanio a ring as a token of her affection. What did the gift symbolise ? [3]
- (iv) What assurance did Bassanio give her when he accepted the ring ? [3]
- (v) What did Portia urge Bassanio to do when she learnt that his friend Antonio was in trouble ?
What aspect of her character is revealed through her words ? [4]

Question 3.

Read the extract given below and answer the questions that follow :

Duke : You hear the learn'd Bellario, what he writes :
And here, I take it, is the doctor come.
[Enter Portia, dressed like a Doctor of Laws]
Give me your hand. Come you from old Bellario ?
Portia : I did, my lord.
Duke : You are welcome; take your place.
Are you acquainted with the difference
That holds this present question in the court ?

- (i) Where is this scene set ? Why was Portia there ? [3]
- (ii) What reason had Bellario given for his absence ? Whom had he sent in his stead ? [3]
- (iii) Bellario's letter stated that he had taken some measures to prepare the 'young and learned doctor' to deal with the case. What were they ? [3]
- (iv) What was the 'difference' between Shylock the Jew and Antonio the merchant that the Duke was unable to resolve ? [3]
- (v) How does Portia succeed in saving Antonio ?
What does this reveal of her character ? [4]

SECTION B - POETRY

A Collection of Poems

Question 7.

Read the extract given ahead and answer the questions that follows :

"Now tell us what it was all about"

Young Peterkin, he cries.

And little Wilhelmine looks up

With wonder-waiting eyes,

"Now tell us all about the war,

And what they fought each other for".

—After Blenheim, Robert Southey

- (i) Who are Peterkin and Wilhelmine ?

How does the poet describe the scene at the beginning of the poem ? [3]

- (ii) What did Young Peterkin find and where ? Describe it. [3]

- (iii) Who is referred to as "each other" ? What did they fight for ? [3]

- (iv) To whom are the words in the extract addressed ? How was this person's family affected by the war ? [3]

- (v) What, according to the poet, are the consequences that are often associated with great and famous victories ? What message does the poet want to convey to the readers ? [4]

Question 8.

Read the extract given below and answer the questions that follows :

There's nobody on the house-tops now.....

Just a palsied few at the windows set;

For the best of the sight is, all allow,

At the Shamble' Gate.....or, better yet,

By the very scaffold's foot, I trow.

—The Patriot, Robert Browning

- (i) Who is the speaker ? Where is he being taken ? Why ? [3]

- (ii) Describe the scene when he had walked down the same street a year ago. [3]

- (iii) Where does the speaker think all the people had gathered that day ? Why does he think so ? [3]

- (iv) Describe the speaker's physical condition. [3]

- (v) What is the centre message of the poem ? Does the poem end on a note of hope or despair ? Give one reason for your answer. [4]

Question 9.

Read the extract given below and answer the questions that follow :

All round the field spectators were gathered

Cheering on all the young women and men

Then the final event of the day was approaching

The last race about the begin.

—Nine Gold Medals, David Roth

- (i) Where had the 'young women and men' come from ? What had brought them together ? He had they prepared themselves for the event ? [3]

- (ii) What was the last event of the day ? How many athletes were participating in this event ? What signal were they waiting for ? [3]

- (iii) What happened to the youngest athlete half way through the race ? How did he respond ? [3]

- (iv) What 'strange' turn did the story take at this point ? [3]

- (v) Why does the poet say that the banner — 'Special Olympics' could not have been nearer the mark ? What human quality does the poem celebrate ? [4]

SECTION C - PROSE

A Collection of Short Stories

Question 10.

Read the extract given below and answer the questions that follow :

It had no eyes, ears, nose or mouth. It was just a round smooth head — with a school cap on top of it ! And that's where the story should end. But for Mr. Oliver it did not end here.

The torch fell from his trembling hand. He turned and scrambled down the path, running blindly through the trees and calling for help. He was still running towards the school buildings when he saw a lantern swinging in the middle of the path.

- (i) Who was Mr. Oliver ? Where did he encounter 'It' ? [3]

- (ii) Where did Mr. Oliver work ? Why did Life magazine describe this place as the 'Eton of the East' ? [3]

- (iii) Why had Mr. Oliver approached 'It' in the first place ? What had he mistaken it for ? [3]

- (iv) What is lantern ? Who was holding the lantern ? Why did Mr. Oliver feel relieved at the sight of the lantern ? [3]

- (v) Briefly describe the meeting between the lantern-bearer and Mr. Oliver.

State one reason why 'A Face in the Dark' could be considered a horror story ? [4]

Question 11.

Read the extract given ahead and answer the questions that follow :

An angry athlete is an athlete who will make mistakes, as any coach will tell you I was no exception. On the first of my three qualifying jumps, I leaped from several inches beyond the take-off board for a foul.

- (i) When and where is this story set ?
What reason does the narrator Jesse Owens give for the heightened nationalistic feelings at this time ? [3]
- (ii) In which event had Owens been confident of winning a gold medal ? Why ? [3]
- (iii) What had made Owens angry enough to make mistakes ? [3]
- (iv) Name Owens' rival who approached him at this point. What advice did this athlete give Owens ? [3]
- (v) How did the two athletes perform in the finals ? What does Jesse Owens consider his 'Greatest Olympic Prize' ? Why ? [4]

Question 12.

Answer the following questions with reference to Ray Douglas Bradbury's short story, 'All Summer in a Day'.

- (i) Name the planet on which this story is set. Describe everyday life on this planet. [4]
- (ii) Why was there so much excitement in the school room that morning ? What set Margot apart from the other children ? [4]
- (iii) Describe how the planet was transformed when the sun came out and shone briefly over it. Why was Margot not able to witness this phenomenon ? What emotion do you suppose the other children experienced when Margot emerged at the end of the story ? [8]

ANSWERS

SECTION A

Answer 1.

- (i) At the beginning of this scene, Antonio appeared to be sad and despondent. But he did not know the reason for his sadness. He said that he had no idea how he caught it, found it, or came by it, or what stuff it was made of and how it originated. This sadness had made him such an idiot that he had much trouble to know himself. Salerio said that Antonio's mind was troubled with the thoughts of his ships that were being tossed on the ocean. He said that Antonio must be worried about the fate of his argosies that sail like signiors and rich burghers in the sea, overpeering the petty traffickers. Solanio further added that if he had such ships venturing at sea, the better part of his concerns would be hoping about his commercial gains from his trade with foreign countries. He further added that Antonio must be in love. Hence, he was sad.
- (ii) Antonio requested Bassanio to tell him everything and promised him that if his plan was as honourable as him, his money 'purse', he as a person, his uttermost resources 'extremest means', all would lie unlocked for Bassanio. All his resources would be available for his dearest friend's disposal.
- (iii) Bassanio said that there was a 'lady richly left' or inherited a big fortune in Belmont. She was beautiful, and more so because of her wondrous

virtues. Sometimes, he had received speechless messages from her eyes. Her name was Portia and she was in no way inferior to Cato's daughter and Brutus' wife—Portia. The whole world was aware of her worth since renowned suitors set sail from the four directions to seek her hand. Praising her beauty, he said that her sunny locks hung on her forehead like the Golden Fleece.

So her house in Belmont can be suitably compared to the coast of Colchis to which many men used to sail in ancient times in quest of the golden fleece. He said that if he had enough wealth, he would have undoubtedly proved to be her successful suitor.

- (iv) Antonio was unable to lend the money to Bassanio because all his fortunes were invested in the cargoes which his ships were carrying upon the sea. He neither had money, nor commodity to raise the present sum. He was as poor as Bassanio. Antonio asked Bassanio to go to Venice and contact some other merchant or moneylender and borrow the required amount of money in the name of Antonio. Antonio was certain that Bassanio would be able to borrow the money through his trust or his sake.
- (v) Antonio and Bassanio shared a deep bonding and their friendship was beyond measure. They both were loyal to each other and their relationship was based upon mutual trust and respect. Bassanio has always relied on Antonio both for financial

(money) as well as emotional (love) support. There was selfless love between the two.

The relationship was put to test later in the play when Antonio failed to repay the money that he borrowed from Shylock and was tried in the court of law. Antonio had made the bond for Bassanio's sake, putting his life at risk willingly just to lend him some money. Shylock wanted to extract a pound of flesh from Antonio's body as per the condition in the bond in case of failing to pay him back. Bassanio blamed himself for putting his friend in such a poor condition as Antonio had borrowed money for his dear friend. However, Portia intervened as the witty lawyer and saved his life.

Answer 2.

- (i) Bassanio found the 'gentle scroll' in the leaden casket. He had just won Portia's hand in marriage as the 'prize', by choosing the right casket that contained Portia's portrait.
- (ii) Bassanio felt 'Giddy in spirit, still gazing in a doubt' because he could not believe his fortune. He felt like one of the two people competing for a prize, and like the successful competitor, he thought that he had done well in people's eyes. However, hearing their applause and universal shout, he wondered if their praise was for him. He was doubtful if what he saw in front of his eyes was true until confirmed, signed, and ratified by Portia herself.
- (iii) The ring had great significance between Portia and Bassanio because it was a symbol of their marriage. It not only symbolised trust and commitment between the two but also gave Bassanio the authority over her house, her servants and even her own self.. Portia gifted Bassanio the ring and asked him not to part with it. If he ever parted with it, or lost it, or gave it away, it would indicate that his love for her has come to an end.
- (iv) Bassanio accepted the ring from Portia and assured her that if the ring parted from his finger, he would part from life. Then, she might be bold to say that Bassanio had ceased to live in this world. He assured her that he would never part with the ring unless death was the reason.
- (v) Portia urged Bassanio to pay Shylock six thousand ducats and nullify the bond. In fact, he should pay shrewd Shylock double that amount; even triple

it, before Bassanio's friend loses a hair because of him. She suggests him he should first go to the church and solemnize the marriage with her and then go to Venice to help his friend for he would have enough gold to pay such a petty debt twenty times over. She even requested Bassanio to bring his friend to Belmont after the debt is paid.

Portia was a woman of great strength and integrity. She valued love and friendship more than anything else. Her words revealed her kind and generous nature. She had immense capacity for love and human compassion. We could notice her sympathy towards Antonio through her words. Her love towards Bassanio made her surrender all her property to him spontaneously.

Answer 3.

- (i) The scene is set in the court of justice, in Venice. Portia was there disguised as the young lawyer, on behalf of the learned Bellario, to save Antonio from Shylock.
- (ii) Bellario had given the reason of sickness for his absence. He wrote in the letter that he was very sick so he was sending a young doctor of Rome whose name was Balthazar. He further wrote that he acquainted the young doctor with Antonio's case and they have consulted many law books and he had also told him his point of view about the case. In reality, Balthazar was none other than the mistress of Belmont, Portia herself, disguised as a young lawyer.
- (iii) Bellario's letter stated that he had acquainted the young doctor of Rome, Balthazar with the cause of controversy between Shylock and Antonio. Moreover, they had consulted many books on law together. Balthazar was furnished with Bellario's opinion, bettered with his own learning. He requested the Duke to let the young doctor come in his place and told him not to let his young age be an obstacle in receiving a respectful consideration from him and his court for he had never known so young a person to be so intelligent.
- (iv) Shylock had lent Antonio three thousand ducats on the condition that if he failed to repay the amount within three months, he would extract one pound of flesh from Antonio's body. Unfortunately, Antonio's ships got lost at sea. He turned bankrupt and was unable to repay the debt. Despite several requests and pleadings, Shylock was determined to extract the flesh and hence Antonio was tried

at the court of law. The Duke was unable to solve this 'difference' as Shylock was not ready to listen. He had requested Shylock to lose the forfeiture and moved by human gentleness and kindness, forgive Antonio's portion of the principal amount, on 'glancing an eye of pity on his losses'. He asked Shylock to draw compassion seeing Antonio's poor condition. However, Shylock had sworn by their holy Sabbath to have the penalty of the bond which was the pound of flesh and if the Duke denied justice, he threatened that the privileges enjoyed by his city and the freedom of his city would suffer much damage.

- (v) Portia succeeds in saving Antonio by asking Shylock not to shed a single drop of blood while extracting the pound of flesh since it is not written in the bond. But if he sheds one drop of the Christian's or Antonio's blood, his lands and goods, by the laws of Venice, would be confiscated by the state of Venice. Also, Shylock had to cut out exactly one pound of flesh. If he cut even the smallest bit over a pound, Shylock would be put to death. This made Shylock finally lose the trial. This reveals Portia's immense courage and wisdom. Without being afraid, she bravely fights the trial and releases Antonio from the clutches of Shylock. She was no more the meek wife of Bassanio, but a fearless woman, full of wit and presence of mind.

SECTION B

Answer 7.

- (i) Peterkin and Wilhelmine are the grandchildren of Old Kaspar, an old farmer. At the beginning of the poem, the poet describes that it was a summer evening. Old Kaspar was already over with work and he was sitting in the sun, before his cottage door, watching his grandchildren playing on the green field.
- (ii) Young Peterkin found a poor fellow's skull, beside the rivulet where he was playing. It was large, round and smooth. He did not know what it was so he took it to his grandfather. Old Kaspar told him that it was the skull of a soldier who died in the Battle of Blenheim—the great victory.
- (iii) "Each other" refers to the countries of France and England. The French and the English armies fought the Battle of Blenheim. It was the English who put the French to rout or defeated the French. Old Kaspar could not tell the reason what they fought for. He could not tell what good came out

of it but only remembered that everybody said that "T'was a famous victory".

- (iv) The words in the extract are addressed to Old Kaspar.

Old Kaspar said that during the battle, his father lived at Blenheim, nearby the little stream. His dwelling was burnt to the ground and he was forced to flee. He fled with his wife and children. His condition was so miserable that he had nowhere to find a refuge. The battle had rendered them homeless.

- (v) According to the poet, uncountable loss of lives is a common consequence of every victory. The war brought devastating effects on the common people. The country was ruined far and wide with 'fire' and 'sword'. Many childing mothers and new-born babies died. Many thousand bodies lay rotting in the sun. These are the normal consequences of every famous victory.

The poet wants to convey the message that war represents the worst form of humanity. War can never bring peace and prosperity. The poor fellow's skull that Peterkin finds beside the rivulet stands witness to this observation. Every 'great victory' has rendered thousands of men homeless. The poet has also conveyed the contrast that how the innocent little children, perceive the reality of the war and its futility from their own perspectives whereas older people like Kaspar do not have fresh thinking and dwell in the conventional opinions about the war. They remain unaware about the reasons behind the war.

Answer 8.

- (i) The patriot is the speaker. The patriot is being taken to the scaffold for his execution. He is being executed for his misdeeds. Nobody remembers what he had done for his countrymen now.
- (ii) The patriot was given a grand welcome when he had walked down the street a year ago. Elaborate arrangements were made to welcome him as he returned from his grand victory in a war. His path was filled with roses and myrtles. The overcrowded house-roofs seemed to heave and sway in jubilation. The church towers blazed with victory flags. People went mad with frenzy.
- (iii) A year ago, the people gathered in large numbers on their house-roofs to welcome the patriot and cheer him, but now he sees that no one is there

for him except a few crippled watching him from their windows. Most of the people have gone to the "Shamble's Gate" or are near the scaffold to get a better view of his execution.

The patriot thinks that the people have forgotten what he did for them and are now full of contempt for him.

- (iv) The present condition of the patriot is miserable. He is being taken to the scaffold for his execution. It's pouring heavily and he's completely drenched in the rain. A tight rope cuts his wrists behind. His forehead bleeds because of the stones hurled at him by the people. There is nobody on the house-tops now, just a few crippled watching him from their windows. All are at the Shambles' gate or by the very scaffold's foot to get a better view of his execution.

- (v) The central idea of the poem revolves around the rise and fall of one's fortunes. The opinions of fickle-minded people change rapidly, without lending much thought to justice and truth. The patriot is initially worshipped and celebrated, the people go mad with frenzy to catch a glimpse of him but within a year he is taken down for execution. Justice is not meted out to him and he believes that real justice can only be delivered by God. The message of this poem also depicts a contrast between the fickleness of the public and the divine nature of God.

The poem ends on a note of hope and optimism because the patriot puts immense faith in the justice of God. He believes that God will give him his due rewards. He feels safer knowing that God knows he stood for what he thought was right and thus he will be safe in His hands.

Answer 9.

- (i) The young men and women had come from various countries to take part in the Special Olympics.

The event, Special Olympics, had brought them together. They had come to run for the gold, the silver, and the bronze.

The athletes had vigorously prepared for the event. They had spent many weeks and months in training, all building up to the games.

- (ii) The last event of the day was the hundred metres race to be run by the athletes.

Nine athletes were participating in the event.

The participants were waiting for the sound of the gun. It was their signal to start the race.

- (iii) The youngest among the athlete stumbled and staggered and fell on his knees to the ground.

He gave out a cry of frustration and anguish as all his dreams and efforts were dashed in the dirt.

- (iv) When the youngest athlete fell down, the other eight athletes stopped in their track. They turned around one by one and came back to help him. They lifted the young lad to his feet. Then all the nine runners joined hands and continued. The one hundred metres race turned into a walk.

- (v) The poet says that the banner- 'Special Olympics' could not have been nearer the mark because of the special incident that happened. All the eight runners came back to help the youngest athlete when he stumbled and staggered and fell on his knees to the ground. Without caring about the competition, all of them came back because of their human compassion and generosity. Hence, the event was 'special' in every way.

The poem celebrates the virtues of goodness and kindness. Their radiant display of warmth, affection, and companionship is what the poem celebrates. Their empathetic behaviour for their fellow athlete made them win everyone's applause and appreciation.

SECTION C

Answer 10.

- (i) Mr Oliver was an Anglo-Indian teacher. He had been teaching in the school for several years. He was neither a nervous nor an imaginative man.

Mr Oliver encountered 'It' sitting alone on a rock in the pine forest.

- (ii) Mr Oliver worked in a school as a teacher and had been teaching there for several years. The school was situated on the outskirts of the hill station of Simla.

Eton is a very famous school in Berkshire, England. According to the author, the school was called as the Eton of the East as it ran on English public school lines. The boys were from wealthy Indian families and wore blazers, caps and ties.

- (iii) Oliver approached 'It' in the first place because boys were not supposed to be out after dark. So on seeing him, he asked the boy what he was doing there.

Oliver had mistaken 'It' to be a student, who was out in the dark for some mischief.

- (iv) A lantern is a lamp with a transparent case protecting the flame or electric bulb and typically having a handle by which it may be carried or hung.

A man who Mr. Oliver mistook for the watchman had the lantern.

Oliver felt relieved seeing the watchman who carried a lantern after he had encountered the horrible sight of a boy who had no eyes, ears, nose or mouth. He was gasping for breath when he met the watchman. He asked for his help.

- (v) Mr Oliver was running blindly through the trees and calling for help. He was running towards the school buildings when he saw a lantern in the middle of the path. Then he stumbled up to the lantern-bearer or the watchman, gasping for breath. The lantern-bearer asked him what it was that he had seen and if there had been any accident. He asked him why he was running. Mr Oliver told him that he had seen something horrible, a boy weeping in the forest who had no face.

The lantern-bearer then raised the lamp to his face and asked 'Do you mean it was like this, Sahib? Mr Oliver saw that he had no eyes, no ears, no features at all, not even an eyebrow. Just then the wind blew the lamp out and there was darkness. One reason why 'A Face in the Dark' could be considered a horror story is its setting. The setting is a big element in a ghost story. The story is set on a windy day, in a pine forest, on the outskirts of the hill station of Simla. The abandoned forest landscape immediately evokes a sense of isolation and fear. When there was a strong wind, the pine trees made 'sad, eerie sounds' that kept most people to the main road. This intensifies the mystery.

Answer 11.

- (i) The story is set in Berlin, Germany in 1936 during the Olympic Games. The two participants of this game were Jesse Owens and Luz Long. The nationalistic feelings were at an all-time high because Hitler insisted that his performers were members of a 'master race'. Hence, feelings of nationalism were high in the other players, particularly Jesse Owens, the American Negro athlete.
- (ii) Jesse Owens was confident of winning a gold medal in the running broad jump.

Owens was confident because he had trained, sweated, and disciplined himself for six years to take part in the Olympic Games. A year before, as a student at Ohio State University, he had set the world's record of 26 feet 8-1/4 inches. Everyone expected him to win that Olympic hands down.

- (iii) Jesse Owens was angry at Hitler's theory because he believed that his performers were part of a 'master race' and were superior and better than all the others. Owens had been very confident of winning a gold medal in the running broad jump. During the trials, Jesse Owens was startled to see a tall German, named Luz Long. He was told that Hitler had kept him secret from the others, and was hoping to win the broad-jumping event with him. If Luz Long had won the medal, it would have supported the Aryan superiority theory. After all, Owens was a Negro and Luz Long was a German. This made him angry enough to make mistakes.

- (iv) Luz Long, the tall German broad jumper with friendly blue eyes, approached Owens at this point.

Luz suggested that Jesse should draw a line a few inches in the back of the board, and aim at making his take off from there. He would definitely not foul, and would certainly jump far enough to qualify for the finals. Owens drew a line confidently, a full foot in back of the board and proceeded to jump from there. Consequently, he qualified with almost a foot to spare.

- (v) Luz Long broke his own past record in the finals. In doing so, he pushed Jesse on to a peak performance. Jesse's final jump set the Olympic record of 26 feet 5-5/16 inches.

Jesse Owens considered his friendship with Luz Long to be his 'Greatest Olympic Prize.' He felt immense respect for Luz at that time when he was there congratulating Jesse Owens with a smile. He felt he had won the precious medal of friendship which was more valuable to him than the gold medal. One could melt down all the gold medals and cups he had but they would not even form plating on the 24-carat friendship that he felt for Luz Long at that moment.

Answer 12.

- (i) Venus is the planet on which this story is set. The 'rocket men and women' lived here with their families. It had been raining for seven years; 'thousands upon thousands of days compounded and filled from one end to the other with rain,

with the drum and gush of water, with the sweet crystal fall of showers and the concussion of storms' were so heavy that they were like tidal waves over the islands. 'A thousand forests had been crushed under the rain and grown up a thousand times to be crushed again. There was no sun for seven years. The people used to live in underground houses and tunnels and used sun lamps.' This was the way, life was on the planet Venus.

- (ii) There was so much excitement in the school room that morning because the scientists had predicted that the sun would appear, only for two hours. They were all nine year olds, and they had last seen the sun, seven years ago, when the sun came out for an hour and showed its face to the stunned world. But they have forgotten how it felt. All day, the day before, the children had read about the sun in class, about how like a lemon it was, and how hot. They had written small stories or essays or poems about it. Everyone was eagerly waiting for the sun to appear.

Margot was one of the children who lived on the planet Venus. She was nine years old, a very frail girl. She always stood separate, away from the other children and refrained from playing with them. When the class sang songs, her lips barely moved. She only sang when they sang about the sun and the summer. She longed for the warmth of the sun as she had come here only five years ago from Earth. She remembered the sun and the way the sun was and the sky was when she was four in Ohio, while the other children had been on Venus all their lives. They were only two years old when they last saw the sun and had long since forgotten the colour and heat of it and the way it really was. However, Margot remembered how the sun looked. All these facts set Margot apart from the other children.

- (iii) The rain finally stopped. 'It seemed as if in the midst of a film concerning an avalanche, a

tornado, a hurricane, or a volcanic eruption' something had gone wrong with the sound apparatus, cutting off all noise, all of the blasts and repercussions and thunders, and then, ripped the film from the projector and inserted in its place a beautiful tropical slide which did not tremble. The world ground to a standstill. The silence was immense and unbelievable.

The children put their hands to their ears. They stood apart. Finally, the sun came out. It was the colour of 'flaming bronze' and was huge in size. The sky around was 'a blazing blue tile colour'. The jungle burned with sunlight. The children were running and turning their faces up to the sky and feeling the sun on their cheeks like a warm iron; they were taking off their jackets and letting the sun burn their arms. They stopped running and stood in the great jungle that covered Venus. It was a nest of octopi, clustering up great arms of weed, wavering, flowering in that brief spring. It was 'the colour of rubber and ash', that jungle, from the many years without the sun. It was the colour of stones and white cheeses and ink, and it was 'the colour of the moon'. The children lay out, laughing, on the jungle mattress, and heard it sigh and squeak under them resilient and alive. The whole planet came alive.

Margot was unable to witness the phenomenon because the children had put her in the closet. They surged about her, caught her up and bore her back into 'a tunnel, a room, a closet, where they slammed and locked the door'.

When Margot emerged from the closet, the children could feel a pang of tremendous guilt and shame. They could not meet each other's glances and their faces were solemn and pale. The sun had played an important role in this. Lack of exposure to sunlight had made them pale and colourless. It had also taken away their compassion and kindness. Then they understood what they had been lacking in.

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QUESTIONS

SECTION A—DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Portia : Go draw aside the curtains, and discover
The several caskets to this noble prince—
Now make your choice.

Morocco : The first, of gold, who this inscription
bears,
“Who chooseth me shall gain what many
men desire”.

- (i) Who is Morocco ? How did he introduce himself to Portia when they first met in an earlier scene ? [3]
- (ii) How would Morocco know that he had made the right choice ? What would his reward be ? [3]
- (iii) Which casket did Morocco finally choose ? What reasons did he give for rejecting the casket made of lead ? [3]
- (iv) What two objects does Morocco find in the casket of his choice ? What reason does he give to Portia for leaving in haste ? [3]
- (v) How does Portia respond to Morocco's parting words ? What does this reveal of her nature ? [4]

Question 2.

Read the extract given below and answer the questions that follow :

Bassanio : Were you the doctor, and I knew you not ?

Gratiano : Were you the clerk ?

Antonio : Sweet lady, you have given me life and living;

For here I read for certain that my ships
Are safely come to road.

Portia : How now, Lorenzo !

My clerk hath some good comforts too for you.

- (i) Where does this scene take place ? What had Portia directed Antonio to give to Bassanio, just moments before the above words were spoken ? [3]
- (ii) Portia had just given Antonio, Bassanio and Gratiano a letter to read. Who had written this letter ? What does Bassanio learn about Portia from this letter ? [3]
- (iii) What good news does Portia have for Antonio ? How does he respond to it ? [3]
- (iv) To whom does Portia refer as 'My clerk' ? What 'good comforts' does the 'clerk' have for Lorenzo ? [3]
- (v) How was Bassanio persuaded to give away the ring that Portia had given him at the time of their marriage ? What does this reveal of Bassanio's relationship with Antonio ? [4]

ANSWERS

SECTION A

Answer 1.

- (i) Prince Morocco is a dark-skinned, boastful warrior of African origin, who seeks the hand of fair Portia. He introduces himself as a person who lives near the equator, where the exposure to sun rays have to be blamed for his complexion and Portia should not dislike him for it. He even says that his blood is as red as that of 'the fairest creature northward born'—that 'the best regarded virgins' of his land find him most attractive and his outward appearance inspired fear in the most courageous of men.

** Questions are not given due to change in the present syllabus.

- (ii) Morocco would know he has chosen the right casket, if he finds Portia's portrait in one of them. His reward would be Portia's hand in marriage.
- (iii) Morocco chooses the golden casket. He says lead is of lowly origin and the portrait of a lady as great as Portia cannot be placed in it. He reads the inscription, "He who chooses me must give and risk all he has." This makes the lead casket too threatening. He wonders why should anyone risk everything for lead and that men would be prepared to take a risk only if there was a chance of winning 'fair returns'. He also feels that a golden mind like his should not bow down to choose something worthless. So, he will not risk anything for lead.

- (iv) Morocco finds 'A Carrion Death', — an empty human skull and a scroll in the gold casket, which he chooses. Morocco says he is moved and that he does not want to make his departure a painstaking process and he wants to leave immediately without revealing his emotions. He is sad, disappointed and says, 'labour lost... farewell heat and welcome frost'.
- (v) Portia is relieved that Morocco has left without making any scene. It was a gentle riddance and all like him should go in a similar manner. This shows that Portia has a kind heart and does not want anyone to be hurt. Her love for Bassanio overrides her passion that makes her wish that only he should be able to make the right choice. She also judges a person by outward appearances and does not wish to marry Morocco because of his dark skin and vain boastful attitude.
- Answer 2.**
- (i) The scene takes place in the avenue outside Portia's house in Belmont. Portia gave Antonio the ring she had given to Bassanio at the time of marriage. She had made him promise that he would not part with it on any account but her husband had given it to the lawyer who saved his friend Antonio from death.
- (ii) Portia says the letter that came from Padua was written by Bellario, a lawyer. Bassanio learns that it was his wife who had pretended to be a lawyer and saved Antonio.
- (iii) Portia gives the good news that Antonio will find three of his argosies at the harbour laden with rich cargo and hearing this, Antonio is too surprised to react. Antonio says, 'You have given me my life and my livelihood.'
- (iv) Portia refers to Nerissa as 'My Clerk'. She says that she has a special gift for Lorenzo and Jessica, from the rich Jew. It is a special deed of gift which makes clear that after his death, all his possessions will be inherited by Jessica and Lorenzo.
- (v) Portia who had played the role of a lawyer defending Antonio, had asked for the ring that Bassanio had received from her earlier as an appreciation of her role in saving his friend. Bassanio, at first refused to part with it saying his wife would be upset if he gave the ring away. He was supposed to keep it as a token of faith. Portia said, he was giving a lame excuse as all husbands do and pretended to be disappointed when Bassanio did not part with it even after she had saved his friend from the clutches of death. Antonio also persuaded him in the name of friendship and for the lawyer's service. Bassanio valued Antonio's friendship highly and could not refuse him. He was prepared to risk Portia's anger as Antonio was his dearest friend.

GURUKUL

QUESTIONS

SECTION A —DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Why, look you, how you storm!

I would be friends with you and have your love,

Forget the shames that you have stain'd me with,

Supply your present wants, and take no doit

Of usance for my moneys, and you'll not hear me :

This is kind I offer.

- (i) Where does this scene take place ? Who is the speaker ? To whom is he talking ? [3]
- (ii) What are the 'shames' which the speaker says have stained him ? [3]
- (iii) What are the 'present wants' ? Who is in need of the 'present wants' ? Why ? [3]
- (iv) Explain "This is kind I offer". What does the speaker propose to do immediately after this ? [3]
- (v) What do you think of Antonio and of Shylock with regard to the signing of the bond ? [4]

Question 2.

Read the extract given below and answer the questions that follow :

Portia : To these injunctions everyone doth swear
That comes to hazard for my worthless self.

Arragon : And so have I address'd me. Fortune now
To my heart's hope ! – Gold, silver and base lead.

- (i) Who had tried his luck in trying to choose the correct casket before the prince of Arragon ? Which casket had that suitor chosen ? What did he find inside the casket ? [3]
- (ii) What are the three things Arragon was obliged by the oath to obey ? [3]
- (iii) What was the inscription on the golden casket ? How do the actions of the martlet illustrate this inscription ? [3]
- (iv) Which casket does Arragon finally choose ? Whose portrait does he find inside ? Which casket actually contains Portia's portrait ? [3]
- (v) Who enters soon after ? What does he say about the young Venetian who has just arrived ? What gifts has the Venetian brought with him ? [4]

ANSWERS

SECTION A

Answer 1.

- (i) The scene took place in Venice. The speaker is Shylock. He was talking to Antonio.
- (ii) Shylock says so because Antonio called him a non-believer, merciless dog and spat on his long Jewish robe. He had also mocked and abused him at the Rialto for the practice of charging interest.
- (iii) The 'present wants' were a sum of money of three thousand Ducats. Bassanio was in need of them because he wanted to go to Belmont to present himself as a worthy suitor to woo Portia.
- (iv) Assuring Antonio that he means to be friends, Shylock offers to make the loan without interest.

He proposes to go to the notary and get Antonio to sign a single bond.

- (v) Shylock is cunning, cautious and crafty. He belongs to a race which has been persecuted since its beginning. Antonio is easy-going, trusting, slightly melancholic, romantic and naïve. Shylock trusts only in the tangible – that is, in the bond. Antonio trusts in the intangible, that is luck. Here, Shylock seems almost paranoid and vengeful, but on the other hand, Antonio seems ignorantly over-confident rather stupid because he is lacking common sense and maturity while dealing with such a large sum of money.

** Questions are not given due to change in the present syllabus.

Answer 2.

- (i) The Prince of Morocco tried his luck in choosing the golden casket before the Prince of Arragon.
He finds an empty human skull with a scroll in its hollow eye in which it is written that those who are attracted by the glittering outside of things are always deceived.
- (ii) He promises Portia that he will abide by her father's rules, that :
He must never tell anyone which casket he had chosen. If he fails to choose the right casket, he will never court another woman; and he will leave Belmont immediately.

- (iii) The inscription on the golden casket was, "Who chooseth me shall gain what many men desire".
The martlet is like the many men who choose by outward show or appearance; they do not see the inner worth of things.
- (iv) Arragon chooses the Silver Casket.
He finds the portrait of a blinking idiot – a picture of a fool's head.
The lead casket contains Portia's portrait.
- (v) After the departure of the Prince of Arragon, the servant announces that a young Venetian named Gratiana has arrived in order to announce the approach of his master Bassanio who has sent warm greetings and rich presents to Portia.

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GURUKUL

QUESTIONS

SECTION A —DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Portia : As from her lord, her governor, her king.
Myself and what is mine to you and yours
Is now converted : but now I was the lord
Of this fair mansion, master of my servants,
Queen o'er myself; and even now, but now,
This house, these servants, and this same
myself,
Are yours, my lord :

- (i) Where are Portia and Bassanio ? What has just taken place which makes Portia to speak these words ? What was the inscription given in the lead casket ? [3]
- (ii) What does Bassanio say in praise of Portia's portrait ? [3]
- (iii) What news saddens Bassanio on this happy occasion ? What does Portia ask him to do ? [3]
- (iv) Who is Balthazar ? What was the work assigned to him by Portia ? [3]
- (v) Where does Portia really plan to go ? What similarity do we find between Portia and Antonio ? What does this scene reveal about the character of Portia ? Give a reason to justify your answer. [4]

Question 2.

Read the extract given below and answer the questions that follow :

But mercy is above this sceptred sway;
It is enthroned in the hearts of kings,
It is an attribute to God himself;
And earthly power doth then show likest God's
When mercy seasons justice.

- (i) Name the speaker. Why did the speaker appeal to the Jew for mercy ? Earlier who else in the play appealed for mercy ? [3]
- (ii) What are the three qualities of mercy which the speaker has stated just before the extract ? [3]
- (iii) Give the meaning of 'But mercy is above this sceptred sway'. How does Shylock turn down Portia's plea for mercy ? What does he insist on ? [3]
- (iv) What is Bassanio ready to do for Antonio in the court ? Why is Bassanio snubbed immediately by the disguised Portia ? [3]
- (v) Mention two prominent character traits of Shylock as highlighted through the scene from which the extract has been taken. Substantiate your answer with examples from the text. [4]

ANSWERS

SECTION A

Answer 1.

- (i) Portia and Bassanio are in a room in Portia's house, in Belmont.
Bassanio had selected the right casket, the lead one and had won Portia's hand in marriage.
The inscription given in the lead casket was:
'Who chooseth me must give and hazard all he hath.'
- (ii) Bassanio feels that the picture is so lifelike that only a demi-god could have painted it. He looks at the portrait and exclaims, "Fair Portia's

counterfeit !" He wonders if her eyes are moving or if they seem to move along as his eyes move. He notices that her sweet breath forces her lips open a lovely divider of lovely lips. He then says that the painter was like a spider in creating her hair that looks like a golden mesh to trap the hearts of men, like little flies in cobwebs. Furthermore, he wonders how the painter kept looking at her eyes for so long while painting them. Bassanio would have expected that when the painter finished one of them, it would have enraptured him and kept him from painting the other. Then he realizes that he is giving only a faint praise to the picture, just

** Questions are not given due to change in the present syllabus.

as the picture itself, as according to him it is just an imitation of the real woman herself.

- (iii) The news of Antonio's failed ventures saddens Bassanio. He receives a letter from Antonio stating that all his ships had got lost at sea. He had turned bankrupt and was unable to repay the debt. Despite several requests and pleadings, Shylock was determined to extract the flesh and hence he was to be tried at the court of law.

Portia asks Bassanio to haste to the rescue of Antonio after solemnising their marriage. She asks him to pay as much gold as possible to nullify the bond and then bring back Antonio to Belmont after everything is settled.

- (iv) Balthazar is a servant in Portia's household.

Portia assigns Balthazar the task of carrying a letter to her cousin, Doctor Bellario, in Padua with all haste and to bring back at the earliest whatever the papers and clothes the latter gives him. Finally, he was to meet her at the common ferry that would carry her to Venice.

- (v) Portia plans to go to Venice.

The similarity between Antonio and Portia is that they both love Bassanio unconditionally and can go to any extent to help him whenever he is in distress. Portia is graceful throughout the play with her poise, nobility, presence of mind, courage to execute plans and elegance. From this scene, it is revealed that Portia is a very practical and intelligent woman who is also concerned about the well-being of others. We see that she is able to take quick decisions and dares to act in a way which a normal lady would not even think about. She is not ready to sit back and see actions happen around her, rather, she becomes the centre of actions.

Answer 2.

- (i) The speaker of the above lines is Portia, disguised as a 'doctor of law'.

Portia appealed to the Jew for mercy in order to save the life of Antonio, her husband's friend. Shylock asks why he must show mercy towards Antonio, to which Portia responds that 'the quality of mercy is not strained' but is a blessing to both; those who provide and those who receive it. She further says that mercy is an attribute of God and humans approach the divine when they exercise it.

Earlier in the play, the Duke also begged for mercy.

- (ii) Just prior to the extract, the three qualities of mercy that Portia speaks of are that the quality of mercy is not strained; mercy drops from heaven just like the gentle rain; and that mercy is twice blessed.

- (iii) This line means that mercy is much more powerful than the power wielded by the swords of kings and monarchs.

Shylock remains deaf to reason and turns down Portia's plea for mercy by insisting that justice should be given to him by extracting the penalty for the forfeiture of the bond executed by him.

- (iv) Bassanio is ready to give twice the sum or ten times over the sum. He says that he is ready to sacrifice his life, and even his wife Portia for Antonio.

The disguised Portia snubs Bassanio because with his declaration, he had hurt her feminine sentimentality.

- (v) The scene shows that Shylock has an obstinate mindset and is not ready to make any compromises when the question of taking revenge arises. He is, therefore, a vindictive person who is bound to take revenge at any cost. He is pitiless and evil in his thirst for revenge.

In this trial scene, Shylock's cruel mind finds its expression not only in demanding a pound of flesh of Antonio, but also in the way he whets his knife.

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QUESTIONS

SECTION A —DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Portia :But this reasoning is not in the fashion to choose me a husband. O me, the word "choose" ! I may neither choose whom I would, nor refuse whom I dislike; so is the will of a living daughter curbed by the will of a dead father. Is it not hard, Nerissa, that I cannot choose one, nor refuse none ?

- (i) What test had Portia's father devised for her suitors ? What oath did the suitors have to take before making their choice ? [3]
- (ii) Who is Nerissa ? What does she say to cheer up Portia ? [3]
- (iii) Why does Portia disapprove of the County Palatine ? Whom would she rather marry ? [3]
- (iv) How, according to Portia, can the Duke of Saxony's nephew be made to choose the wrong casket ? What do these suitors ultimately decide ? Why ? [3]
- (v) Whom does Portia ultimately marry ? Who were the two other suitors who took the test ? Why, in your opinion, is the person whom she marries worthy of her ? [4]

Question 2.

Read the extract given below and answer the questions that follow :

Duke : What, is Antonio here ?

Antonio : Ready, so please your grace.

Duke : I am sorry for thee : thou art come to answer

A stony adversary, an inhuman wretch

Uncapable of pity, void and empty

Form any dram of mercy.

- (i) What are the terms of the bond that Antonio has signed ? [3]
 - (ii) Why does the Duke call Shylock 'inhuman' ? What does the Duke expect Shylock to do ? [3]
 - (iii) What reason does Shylock give for choosing rotten flesh over money ? What are the things hated by some people ? [3]
 - (iv) State three examples Antonio gives to illustrate Shylock's stubborn attitude. [3]
 - (v) How is Shylock's property distributed at the end by Antonio ? [3]
- Do you think Shylock deserves the punishment given to him ?
- Give a reason to justify your answer. [4]

ANSWERS

SECTION A

Answer 1.

- (i) Portia's father, the Lord of Belmont, devised the scheme of the three caskets of gold, silver and lead for her suitors. There were inscriptions on all the three caskets. The one who chooses the right casket, could marry Portia.
The oath which the suitors had to take before making the right choice was that they will not reveal it to anyone, which casket they had chosen and also they will not woo any other woman for the purpose of marriage in their life.

** Questions are not given due to change in the present syllabus.

- (ii) Nerissa is Portia's lady-in-waiting.

To cheer up Portia, Nerissa states that her father was a very virtuous man. She added that such Holy men have divine guidance on their deathbeds and so he had devised the will of three caskets. She further assures Portia that the right casket will be chosen by the person who loves her and not her money.

- (iii) Portia disapproves of the County Palatine by describing him as sullen and morose. She further says that he listens to jovial stories without a smile. She is afraid that he will become a sad philosopher like Heraclitus, when he grows old because he is

so unusually gloomy at this young age. Also, he has an abrupt manner when he speaks. Portia would rather be married to a grinning skeleton with a bone in his mouth.

- (iv) Portia tells Nerissa to place a tall goblet of Rhenish wine on the wrong casket, that is, the casket which does not contain her picture. Portia is sure that the German suitor will not be able to resist the temptation of this national drink even if the picture of the Devil himself is within.

These suitors ultimately decided to leave Portia and go back home, and not press their courtship further, unless her father's decree concerning the caskets can be set aside, and they may woo her in an ordinary way.

- (v) Portia will ultimately get married to Bassanio. The other two suitors who took the test were the Prince of Morocco and the Prince of Arragon. Bassanio is worthy of Portia because he was truthful and was not swayed by external appearances. Moreover, she was already in love with Bassanio.

Answer 2.

- (i) The terms of the bond that Antonio has signed were that, if Antonio is unable to repay Shylock three thousand ducats within three months in an agreed place, the forfeit to be paid will be an exact pound of Antonio's flesh which Shylock will be at liberty to take from any part of his body which pleases him.
- (ii) The Duke calls Shylock 'inhuman' as in spite of Duke's attempt to make Shylock show mercy on Antonio, Shylock intended to keep up this show of severity and hatred until the last stage of the case. To kill Antonio ruthlessly, Shylock keeps demanding a pound of his flesh as per the bond. The Duke expects that Shylock will give a sympathetic reply to his appeal. He makes fun of the Jew and pays him a compliment that he possesses a 'gentle' heart and not a stony heart like the 'stubborn Turks and Tartars'. His object is to pacify him.
- (iii) When Portia tells Shylock that thrice his money has been offered to him, Shylock tells her that he has sworn an oath before God to have nothing but

his bond. He cannot commit the sin of breaking the oath, nor for the whole wealth of Venice will break his oath. He further says, he has fancy for the rotten flesh, that should satisfy him.

There are some people who cannot tolerate the sight of an open-mouthed roasted pig. Some people get almost frantic by the sight of a cat. Still others feel infuriated to hear the scream of the bag-pipe. These are the things hated by some people.

- (iv) Antonio tells Bassanio that if he is hoping to soften Shylock's heart, he might as well stand on the seashore and ask the tide not to rise so high as usual. Further, he may as well ask the wolf why he has made the mother sheep to mourn for the lamb he has devoured. Furthermore, he may as well expect the tall pines in the hillside not to wave their high tops and not to make a noise when they are disturbed by the gales of Heaven.

These three examples clearly prove that if Bassanio tries to melt the hard heart of that Jew, his pleas will stand ineffective.

- (v) Antonio distributed Shylock's property by asking if the Court remits the fine in place of one half of Shylock's goods which comes to the state; provided that, Shylock draws up a will leaving this half, which he retains during his lifetime, to Lorenzo and Jessica after his death and that he must convert to Christianity.

Antonio will hold the half awarded to him in trust also for the benefit of Lorenzo and Jessica. He will give them money regularly until Shylock dies. Then he will give it all to them.

Yes, Shylock deserves the punishment given to him as he was surrounded by so much malice and hatred that he was ready to take Antonio's life to satisfy himself. Shylock's obsession with revenge breaks down only when his intention to kill Antonio is thwarted and utter destitution threatens him. His sense of reality returns. He exclaims that there is no point in pardoning his life if the wealth and property that sustains it, is taken away. He also becomes greedy for money and asks for his three thousand ducats.



QUESTIONS

SECTION A—DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Bassanio : Be assured you may.

Shylock : I will be assured I may; and that I may be assured,
I will bethink me. May I speak with Antonio ?

Bassanio : If it please you to dine with us.

Shylock : Yes, to smell pork; to eat of the habitation which your prophet the Nazarite conjured the devil into. I will buy with you, sell with you, talk with you, walk with you, and so following; but I will not eat with you, drink with you, nor pray with you. What news on the Rialto ? Who is he comes here ?

- (i) Where are Bassanio and Shylock at this time ? What is the purpose of their meeting ? [3]
- (ii) Why does Bassanio say, "Be assured you may ?" What has Shylock said earlier about Antonio's ventures ? [4]
- (iii) What reply does Shylock give to Bassanio's invitation ? [3]
- (iv) What does Shylock say 'aside' about Antonio when he enters the scene ? [3]
- (v) What biblical allusion does Shylock make while speaking to Bassanio in the extract ? [3]

Question 2.

Read the extract given below and answer the questions that follow :

Shylock : My deeds upon my head ! I crave the law,

The penalty and forfeit of my bond.

Portia : Is he not able to discharge the money ?

Bassanio : Yes, here I tender it for him in the court; Yea, twice the sum :.....

.....And, I beseech you,

Wrest once the law to your authority :

To do a great right, do a little wrong,

And curb this cruel devil of this will.

- (i) Where are Shylock, Bassanio and Portia at this time ? Why are they there ? Why does Shylock say, "My deeds upon my head !" ? [4]
- (ii) What does Bassanio go on to say immediately after "Yea, twice the sum" ? [3]
- (iii) What does Bassanio mean by, "Wrest once the law to your authority; to do a great right, do a little wrong" ? What reply does Portia give ? [4]
- (iv) How does Shylock react to Portia's reply ? Who reacts in a similar way as Shylock, later in the scene ? What does that person say when Portia asks Shylock to "Down therefore and beg mercy of the duke" ? [4]
- (v) What is your opinion of Shylock in this scene ? [1]

ANSWERS

SECTION A

Answer 1.

- (i) Bassanio and Shylock are in a public place in Venice. Bassanio has come to ask Shylock whether he would lend three thousand ducats for which Antonio would stand as surety.
- (ii) Bassanio asks Shylock to be assured of the return of his loan, as a guarantee from Antonio. Shylock was hesitant and said that Antonio's merchandise is in various ships and anything may happen to them. They are vulnerable to sea

storms and rocks or theft by pirates and thieves. The material also could be harmed by rats or tampered due to human error.

- (iii) Shylock replies to Bassanio that he cannot accept the invitation because it is the principle of Jews not to dine with the Christians. They eat pork which is forbidden for Jews.
- (iv) Shylock hates Antonio and says in aside that he looks like a fawning tax-collector. He hates him because he is a Christian and also because he foolishly lends money without interest thereby

** Questions are not given due to change in the present syllabus.

affecting his business in Venice. He has now got a chance to catch Antonio upon the hip if he fails to pay the borrowed money in time.

- (v) Shylock narrates a biblical story which says that when Jacob, the prophet, goes to look after the sheep of his uncle Leban, an agreement is made between the two. It is decided that Jacob would receive all the lambs born with spots and stripes. During breeding season, Jacob places wooden rods on the ground, so that their shadows would fall on the sheep. Almost all the lambs are born with spots and stripes and Jacob profits by his trick. He does this in order to justify his practice of charging.

Answer 2.

- (i) Shylock, Bassanio and Portia are at the trial court of Justice in Venice. Shylock is there to make sure that the penalty of a pound of flesh is levied on Antonio. Bassanio is there to save his friend Antonio by paying three times the actual amount taken and Portia is in the court in disguise of a lawyer to defend Antonio in the case. Portia tells Shylock the importance of mercy and how it is a quality of God. She also tries to convince him to give up the case and consider being merciful. On this, Shylock tells her that 'his deeds are upon his head' which means that he alone is responsible for whatever he does.
- (ii) Immediately after Bassanio says to Shylock that he is ready to pay twice the sum, he adds that

if that doesn't suffice him, he is ready to pay ten times the actual amount and sign a contract by giving his hands, head and heart as security. And even if that doesn't appeal to him then it is evident that he is malicious.

- (iii) Bassanio requests the Duke of Venice to use his authority to alter the law in this case. He pleads mercy for Antonio from the Duke and requests him to do a great right by doing a little wrong. To this, Portia replies that it can never happen as no power can change the already established law. She also tells him that even if it is recorded as precedent, the repercussions would set a bad example in the state.
- (iv) Shylock is all in admiration for Portia in disguise. He calls her Daniel because to him, she is fair. Gratiano reacts in a similar way later when Portia warns Shylock that if he takes even a strand of hair more than what is in the contract, he would lose all his property. Gratiano tells Shylock to beg to be hung by the state because he wouldn't be left without money to buy a rope for himself.
- (v) This scene begins with Shylock's mercilessness towards Antonio. He is shown as a ruthless man reflecting how much he hates Antonio. He is often labelled as inhuman and a wretch. These words seem to befit him. Later, when Portia announces that he would have to pay half the property to Antonio and the other half to the state, we find him left all alone among his enemies and a victim of prejudice.

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GURUKUL

QUESTIONS

SECTION A—DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Portia : But mercy is above this sceptred sway,
It is enthroned in the hearts of kings,
It is an attribute to God himself;
And earthly power doth then show likest
God's
When mercy seasons justice.

- (i) Why does Portia speak about mercy in the extract ? [4]
- (ii) Give the meaning of the following :
But Mercy is above this sceptred sway,
It is enthroned in the hearts of kings. [2]
- (iii) Who else had appealed for mercy earlier ? What was the outcome of the appeal ? [2]
- (iv) One should stand for justice. Referring only to the extract, state why, according to Portia, mercy should season justice. [4]

- (v) When Shylock refuses to show mercy, what legal tactics does Portia use to free Antonio ? [4]

Question 2.

Read the extract given below and answer the questions that follow :

Lorenzo : Madam, with all my heart,
I shall obey you in all fair commands.
Portia : My people do already know my mind,
And will acknowledge you and Jessica
In place of Lord Bassanio and myself.
So fare you well till we shall meet again.

- (i) Where are Lorenzo and Portia at this time ? What 'fair commands' are given to Lorenzo ? [2]
- (ii) How does Lorenzo describe Portia in the beginning of the scene ? [2]
- (iii) What does Portia say to Lorenzo about the place where she is going ? Where is she actually going and why ? [4]
- (iv) What order does Portia give to Balthazar a little later ? [5]
- (v) What information does Portia give to Nerissa ? (In what mood is Portia when she is speaking to Nerissa ?) [3]

ANSWERS

SECTION A

Answer 1.

- (i) Portia finds Shylock's case the most unusual one. She tells Shylock to show mercy as a first step before arguing the case for Antonio. Portia finds there is no logical reason behind the bond. However, Shylock is adamant on having the bond fulfilled to satisfy himself and his thirst for revenge. Therefore she gives Shylock an opportunity to alter the bond.
- (ii) A King's sceptre is a symbol of authority and power but mercy is greater than the King's sceptre. Mercy occupies a lofty place in the hearts of kings. It is an essential quality of God. So, the king then acquires a divine quality when he gives mercy.

- (iii) Bassanio had appealed for mercy earlier. He tried to reason out and negotiate with Shylock by saying that he could not kill just because he disliked someone. He also explained that disliking and hating were entirely different. But Shylock was least affected by all that and it only added fuel to the fire. A little later, Bassanio also offered double the amount of the loan but that too did not soften Shylock's heart and he impatiently awaited for his joyous moment of taking a pound of flesh from Antonio's heart.
- (iv) According to Portia, Mercy is an attribute of God himself. One must stand for justice because it is right. When a king adds the flavour of mercy to his justice, he acts in accordance with the God's will and nature. Therefore, she says that "mercy seasons justice".

** Questions are not given due to change in the present syllabus.

- (v) When Shylock refuses to show mercy, Portia examines the contract and announces that no law could stop Shylock from taking a pound of flesh from Antonio's heart. She further tells Shylock to arrange for a surgeon so that Antonio's wounds are dressed immediately and he may not die. Shylock is slightly perplexed at this and declares that it has not been written in the bond. Later, Portia also demands that not a drop of blood must ooze out of Antonio's body. She uses this tactic to throw Shylock in a fix and free Antonio.

Answer 2.

- (i) Lorenzo and Portia are at Belmont.

Portia reveals to Lorenzo that she has sworn to contemplate in prayer at a monastery around two miles away, until her husband returns from Venice. She tells him that Nerissa would accompany her and asks him to manage the house with Jessica till things are settled. In response, Lorenzo tells her that he would be obliged to do whatever she asks him to do.

- (ii) After Bassanio departs to rescue his beloved friend, Antonio, Lorenzo tells Portia that he stands

in admiration for her noble respect for friendship and the way she has perfectly understood the bond of friendship between Bassanio and Antonio.

- (iii) Portia tells Lorenzo that she would live a life of contemplation and pray at a monastery which is two miles away from their place. But in reality, Portia plans to go to Venice in disguise with Nerissa and argue the case in defence of Antonio. She is very sure that her plan would succeed.

- (iv) After asking Lorenzo to manage the house, Portia orders her servant Balthazar to go to Padua, as quickly as possible, where he is supposed to meet her cousin Bellario, a doctor of law by profession. She tells him to bring them clothes and letters which he would give him on the ferry that goes to Venice without wasting any time.

- (v) Portia informs Nerissa that they would see their husbands at the trial without their knowledge. She also tells her of her plan to go in men's disguise and follow Bassanio and Gratiano to Venice. While speaking to Nerissa about her plans to argue the case in Antonio's defence, Portia is excited. She is also in a mood of adventure and is thrilled to flaunt her capability in presenting her arguments for a fair trial.

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GURUKUL

QUESTIONS

SECTION A—DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Portia : O me the word 'choose' ! I may neither choose who I would nor refuse who I dislike; so is the will of a living daughter curbed by the will of a dead father.

- (i) Where are Portia and Nerissa ? Why are they there ? [3]
- (ii) Earlier, in what way did Nerissa try to cheer Portia ? What was Portia's reaction to what Nerissa had said ? [5]
- (iii) State in your own words what Portia means by 'the will of a living daughter curbed by the will of a dead father.' [2]
- (iv) Immediately after this extract, what reasons does Nerissa give to Portia to justify 'the will of a dead father' ? Do you think that the justification proved correct ? Give reasons for your answer. [3]

- (v) Towards the end of the scene, Portia affirms that she must abide by 'the will of a dead father'. What does she say ? From what she says, what opinion do you form of her ? [3]

Question 2.

Read the extract given below and answer the questions that follow :

Shylock : How now Tubal ! What news from Genoa ? Hast thou found my daughter ?

Tubal : I often came where I did hear of her, but cannot find her.

- (i) Who is Tubal ? What has been said about him a little earlier in the scene ? [2]
- (ii) What does Shylock say in response to Tubal's words : 'but I cannot find her' ? [4]
- (iii) What information does Tubal now give to Shylock concerning Antonio ? State what Shylock tells Tubal expressing his reaction to what the latter has said. [5]
- (iv) What instructions does Shylock give to Tubal at the end of their meeting ? [3]
- (v) What is your impression of Shylock as a father ? Give reasons to justify your answer. [2]

ANSWERS

SECTION A—DRAMA

Answer 1.

- (i) Portia and Nerissa are in Portia's house in Belmont. Portia does not like any of her suitors and they are in the room to discuss the events of the day and evaluate each suitor.
- (ii) When Portia complained that she was tired of that world, Nerissa told her that 'being tired' was for those whose luck was bad and with all the wealth and good luck, Portia shouldn't be tired at all. Nerissa also told Portia that too much of anything was bad as they suffered more than those who did not have anything. She advised Portia that one could seek happiness if they had enough to live longer.
Portia was pleased with Nerissa's attempt at cheering her up. She saw a point in what Nerissa said and appreciated her for the way she tried to uplift her spirit.
- (iii) Portia's father made a will for her daughter which states that she cannot marry a man of her choice

but the one who chooses the right casket from among the three caskets of gold, silver and lead. It is her father's wish that Portia should abide by the will.

Since Portia cannot choose her husband and can only go by her luck with the caskets, she exclaims that her will to choose her partner was curbed by the will written by her late father.

- (iv) In order to justify 'the will of a dead father', Nerissa explains to Portia that her father was a virtuous man and such people who are inclined to religion acquire odd ideas on their deathbeds. Nerissa justifies that her father's idea behind such a game is to select the right man for Portia. She also assures Portia that only the one who deserves her love would be able to choose the right casket. This actually proves true as Bassanio who is a true lover chooses the right casket while others due to their self-love and vanity fail to win her.
- (v) When Nerissa tells Portia not to worry about the suitors as they have preferred to stay from her unless there is another way of marrying her,

* Questions are not given due to change in the present syllabus.

Portia feels that even if she lives like Sybil who has been granted eternal life, she prefers to die a virgin like Diana. There is no option for her but to abide by her father's will, if at all she has to marry.

This shows that Portia is an obedient daughter and is respectful towards her father. This decision of hers tells us that she is loyal in her relationships and law-abiding. Her conversation with Nerissa also throws light on her capability to reason out things and be practical.

Answer 2.

- (i) Tubal is a wealthy Jew and a friend of Shylock's. A little earlier, Tubal enters the scene wherein Salerio, Solanio and Shylock are in a discussion. As soon as Solanio sees Tubal entering, he comments satirically that one cannot find another Jew like these two unless the devil himself turned into a Jew. His comment implies that together they made themselves the worst of Jews, Shylock being a moneylender and Tubal being a loyal friend to him.
- (ii) Tubal tells Shylock that he could not find Shylock's daughter, Jessica, in spite of tracing her to Genoa and other places where he has heard about her. In response, Shylock speaks about his losses. He

considers the material loss such as the diamonds and ducats more significant than his daughter. He also wishes to see his daughter dead with those jewels. Shylock's response throws light on his mindset and his obsession for material wealth.

- (iii) Shylock is grieving over his loss when Tubal informs him that even Antonio has got bad luck and that his ship is wrecked which was returning from Tripolis. On hearing this, Shylock is excessively relieved and with a revengeful laughter, thanks him for the good news.
- (iv) At the end of the meeting, Shylock instructs Tubal to find him a police officer to get Antonio arrested. He instructs him to intimate Antonio two weeks in advance so that he can repay the loan. He also tells him that if he fails to do so in those two weeks, he would be glad to take a pound of his flesh and thus flourish in his business at Venice. Lastly, he tells Tubal to meet him at the synagogue later.
- (v) Shylock is very obsessive of his wealth more than his daughter only expresses his sorrow and anger over his daughter's treachery by grieving about the lost diamonds and ducats. This gives us an impression that Shylock is materialistic and is least bothered about his daughter.

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GURUKUL

QUESTIONS

SECTION A—DRAMA

The Merchant of Venice : Shakespeare

Question 1.

Read the extract given below and answer the questions that follow :

Portia : Go, draw aside the curtains, and discover
The several caskets to this noble prince.
(The curtains are drawn back)
Now make your choice.

Portia : Some god direct my judgement ! Let me see :
I will survey the inscriptions back again.

- (i) Where are Portia and Morocco at this time ? [1]
- (ii) Which are 'the several caskets' ? What are the inscriptions that Morocco has just read on 'the several caskets' ? [4]
- (iii) Why does Morocco say : 'Some god direct my judgement !' ? What are the conditions Morocco had to abide by, before making his choice of the caskets ? [4]
- (iv) Morocco later says, 'As much as I deserve'. What does he deserve ? [2]
- (v) Which casket does Morocco finally choose ? What two reasons does he give for his choice ? What do these reasons reveal about his character ? [4]
- (vi) State clearly what you feel for Morocco at the end of this scene. [1]

Question 2.

Read the extract given below and answer the question that follow :

Duke : With all my heart : some three or four of you

Go give him courteous conduct to this place. (Exeunt Officers)

Clerk (reads): 'Your grace shall understand that at the receipt of your letter I am very sick, but in the instant that your messenger came, in loving visitation was with me a young doctor of Rome; his name is Balthazar. I acquainted him with the cause in controversy between the Jew and Antonio the Merchant

- (i) Who is referred to as 'him' in the second line of this extract ? Why has this person come to this place ? [2]
- (ii) What is meant by 'courteous conduct to this place' ? [1]
- (iii) Who is Dr. Bellario ? Why did the Duke send a messenger to him ? What request does Dr. Bellario make to the Duke regarding the 'young doctor of Rome' at the end of his letter ? [3]
- (iv) What is meant by 'controversy' ? How did the controversy arise ? [5]
- (v) What does the 'young doctor of Rome' say about the nature of the controversy a little later ? What request does the 'young doctor of Rome' make to Shylock regarding the 'controversy' ? [3]
- (vi) From what happens later in this scene, what is your opinion of the 'young doctor of Rome' ? Give a justification for your opinion. [2]

ANSWERS

SECTION A—DRAMA

Answer 1.

- (i) Portia and Morocco are in a room in Portia's house in Belmont.
- (ii) There are three caskets made up of—gold, silver and dull lead. The inscription on the gold one reads 'who chooseth me shall gain what many men desire'.
The inscription on the silver one reads 'who chooseth me shall get as much as he deserves'.
The inscription on the casket made of lead reads, 'who chooseth me must give and hazard all he hath'.

- (iii) Morocco is Portia's suitor and he wants to win her hand by choosing the right casket. He feels that making the right choice depends on good luck too. Therefore he prays that God may help him in making the correct choice.

The conditions Morocco has to abide by before making his choice of the caskets are :

- (a) If he chooses the wrong casket, he can never speak to Portia again.
- (b) He can never propose marriage to any woman thereafter.
- (iv) Morocco reads the inscription on the gold casket and then repeats 'As much as I deserve'. According to him, he deserves the fair lady

* Questions are not given due to change in the present syllabus.

because of his noble birth, natural virtues, and education.

- (v) Morocco finally chooses the golden casket. The reasons he gives for his choice are :

(a) Portia is like a gem and a gem of that value and beauty is always set in the precious metals of all—Gold.

(b) He says that in England a figure of an angel is engraved upon a gold coin. Similarly, Portia who too is an angel lies inside the golden casket.

These reasons tell us that Morocco is a man who believes only in superficiality. For him, everything that glitters is gold. He always take things at their face value and his judgement never run deep.

- (vi) We feel that Morocco is a pompous fool who should never have chosen the golden casket in the first place. However, there is also a feeling of pity for Morocco who loves Portia dearly and wanted to win her.

Answer 2.

- (i) The learned doctor Balthazar who is actually Portia is referred to as 'him' in the second line of the extract. This person has come to defend Antonio in the trial scene against Shylock.
- (ii) The Duke instructs the assistants to cordially bring Dr. Balthazar to court.
- (iii) Dr. Bellario is a lawyer of good repute and is also Portia's cousin. The Duke has sent a letter to him to defend Antonio in court and put some sense into Shylock's head. At the end of the letter, Dr. Bellario requests the Duke to contest the trial and

not let his young age be taken as a hindrance in his competence.

- (iv) Controversy is an altercation between two or more parties on some major issue. This controversy is between Antonio and Shylock.

Antonio, a moneylender himself had borrowed three thousand ducats from Shylock. Shylock who hated Antonio cleverly manipulated the situation. He made Antonio sign a contract to the effect that if he failed to repay the borrowed money with interest during the stipulated period, Shylock would cut off a pound of flesh from Antonio's body in lieu of payment.

Since Antonio was unable to pay the debt within the stipulated period of time, Shylock wanted his pound of flesh. Naturally, everyone was against this inhuman act and thus it became a raging controversy.

- (v) The 'young doctor of Rome' says that the controversy is of a rather strange nature. Dr. Balthazar requests Shylock to show some mercy and let him tear the bond.

- (vi) The 'young doctor of Rome' Dr. Balthazar who is actually Portia in disguise is quite clever and intelligent. He turns the case to Antonio's advantage right under our noses. He manages to turn the tables on Shylock and in the end, it's Shylock who is begging for mercy since Portia charges him with an attempt to seek the life of a citizen and also gets his property confiscated by the court.

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GURUKUL

QUESTIONS

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **all** questions from **Part I** (Compulsory). A total of **five** questions are to be attempted from **Part II**, **two** out of **three** questions from Section A and **three** out of **five** questions from Section B.

The intended marks for questions or parts of questions are given in brackets [].

PART-I (30 Marks)

Attempt **all** questions from this Part.

Question 1.

- Name the two Houses of the Indian Parliament. [1]
- What is meant by the term 'Session'? [1]
- How is the Speaker of the Lok Sabha elected? [1]
- What is the term of office of a Rajya Sabha member? [1]
- Who is the Supreme Commander of the Armed forces of India? [1]
- What is the normal term of office of the Vice President of India? [1]
- Who appoints the Prime Minister of India? [1]
- State the body that decides the major policies of the government. [1]
- Name the courts that are empowered to issue Writs for the enforcement of Fundamental Rights. [1]
- Mention any one advantage of the Lok Adalat. [1]

Question 2.

- Mention any two contributions of Bipin Chandra Pal in promoting Nationalism. [2]
- State any two methods adopted by the Early Nationalists in the National Movement. [2]
- Why is October 16, 1905 regarded as an important day in the history of the Indian National Movement? [2]
- Name any two leaders of the Khilafat Movement. [2]
- State any two causes for the Non-Cooperation Movement. [2]
- Mention any two objectives of the Forward Bloc. [2]
- What was meant by the term 'Imperialism', as a cause for World War I? [2]
- Give any two reasons for the rise of Fascism. [2]

- Name the two International Organisations that were formed, one as a consequence of World War I and the other after World War II. [2]
- Give the full form of UNICEF and WHO. [2]

PART-II (50 Marks)

SECTION-A

Attempt any **two** questions from this Section.

Question 3.

With reference to the Union Legislature, answer the following questions :

- Explain any three Legislative powers of the Union Parliament. [3]
- State any three exclusive powers of the Lok Sabha that is not enjoyed by the other House. [3]
- List any four functions of the Speaker of the Lok Sabha. [4]

Question 4.

The Executive Power of the Indian Union is vested in the President. In this context, answer the following :

- How is the President of India elected? State the composition of the Electoral College that elects him. [3]
- Explain any three Discretionary Powers of the President. [3]
- Mention any four Executive Powers of the President. [4]

Question 5.

With reference to the Supreme Court as the Apex Court in our Indian Judiciary, explain the following :

- Any three cases that come under the Original Jurisdiction of the Supreme Court. [3]
- Power of Judicial Review. [3]
- Supreme Court as a Court of Record. [4]

SECTION-B

Attempt any **three** questions from this Section.

Question 6.

By 1857, conditions were ripe for a mass uprising in the form of the Great Revolt of 1857. In this context, explain the following :

- Any three Economic causes for the revolt of 1857. [3]
- Any three Military causes. [3]
- Any three Political causes of the revolt. [4]

Question 7.

With reference to the Mass Phase of the National Movement under the leadership of Gandhi, answer the following :

- (a) Briefly explain the Dandi March of 1930. [3]
- (b) State any three reasons for the launching of the Quit India Movement. [3]
- (c) Explain any four significant effects of the Quit India Movement. [4]

Question 8.

With reference to the Partition Plan, answer the following :

- (a) (i) Name the last Viceroy of India. [3]
(ii) State any two reasons for him to come to India. [3]
- (b) Mention any three proposals under his plan. [3]
- (c) State any four reasons for the Congress to finally accept the Plan. [4]

Question 9.



- (a) Name the organization associated with the above Emblem. Mention any two of its objectives. [3]
- (b) Mention any three functions of WHO, as its agency. [3]
- (c) Name the Principal Judicial Organ of this organization and explain its composition. [4]

Question 10.

With reference to the Second World War and the Non-Aligned Movement, answer the following :

- (a) Explain briefly three reasons for the Dissatisfaction with the Treaty of Versailles. [3]
- (b) State any three consequences of the Second World War. [3]
- (c) Mention any four chief architects of the Non-Aligned Movement. [4]

ANSWERS

PART-I

Answer 1.

- (a) The two Houses of the Indian Parliament are Lok Sabha and Rajya Sabha.
- (b) Sessions are formal sitting of both the Houses of the Parliament to conduct its transactions and business of the Houses. Normally, there are three sessions—1. Budget Session, 2. Winter Session and 3. Monsoon Session.
- (c) The speaker of Lok Sabha is elected by the members of the House.
- (d) The term of office of a Rajya Sabha member is 6 years.
- (e) The Supreme Commander of the armed forces of India is the President.
- (f) The normal term of office of the Vice-President of India is 5 years.
- (g) The President appoints the Prime Minister of India.
- (h) The Cabinet formulates the major policies of the government.
- (i) The Supreme Court and High Courts are empowered to issue Writs for the enforcement of Fundamental Rights of the citizens of India.
- (j) Lok Adalat plays an important role in the settlement of family feuds, disputes between the neighbours and minor cases of assault and injury by settling the disputes by compromise.

Answer 2.

- (a) Two contributions of Bipin Chandra Pal were :
 1. As a journalist he worked for Bengal Public Opinion, The Tribune and New India to propagate his brand of nationalism.
 2. He opposed the caste system and other rigid rules concerning inter-dining and intermixing.
 3. Advocated widow remarriage.
 4. He preached the use of Swadeshi and boycott of foreign goods to eradicate poverty and unemployment.
 5. He demanded 48 hours of work in a week and increase in the wages. (Any two)
- (b) Methods adopted by the Early Nationalists in the National Movement were :
 1. The first set of method was to educate people in India in modern politics to arose national political consciousness and to create united public opinion.
 2. They held meetings where speeches of resolutions for the popular demands were passed.
 3. They made use of press to criticise government policies.
 4. They sent memorandums and petitions to government officials and British Parliament.
 5. They made use of three P's—petitions, prayers and protest. They sent petitions, request and letters of protest to the British government and forced them to look into the problems of the Indians. (Any two)

- (c) October 16, 1905 is regarded as an important day in the history of Indian National Movement because the scheme of partition of Bengal was implemented on this day, which meant to foster the division of Bengal on the basis of religion. East Bengal to be predominantly a Muslim majority state and West Bengal would be a Hindu majority state.
- (d) Two leaders of Khilafat Movement were :
1. Muhammad Ali 2. Shaukat Ali.
- (e) Two causes for the Non-Cooperation Movement were :
1. Rowlatt Act was passed in March 1919 which gave extraordinary powers to the British to imprison any person without trial. There was a terrible massacre at Jallianwala Bagh, Amritsar on April 13, 1919 which led to the Non-Cooperation movement.
2. Khilafat Movement was started by Ali Brothers in August 1920 for the preservation of the Khalifa, the religious head of the Muslims. Gandhiji combined the Khilafat Movement with the Non-Cooperation Movement as he saw this as an opportunity to unite Hindus and Muslims.
- (f) Immediate objective of Forward Bloc was liberation of India with the support of workers, peasants and other organisations. Two general objectives of the Forward Bloc were :
1. Re-organisation of agriculture and industry on socialist lines.
2. Abolition of zamindari system and introduction of new monetary and credit system.
- (g) Imperialism refers to the state policy or practice by which a powerful nation establishes its control over another country, either by direct territorial acquisition or by gathering political and economic control.
- (h) Reasons for rise of Fascism were :
1. Discontentment after the Treaty of Versailles.
2. Italy suffered heavy losses in terms of life and property in the First World War.
3. Complete instability in the country between 1919 and 1922 because of a series of coalition governments.
4. Growing fear of communism.
5. Failure of the League of Nations.
6. Charismatic leadership provided by Mussolini.
(Any two)
- (i) The League of Nations was formed after the First World War and after the Second World War, the United Nations Organisation was established.
- (j) Full form of UNICEF : United Nations International Children's Emergency Fund.
Full form of WHO : World Health Organisation.

PART-II

SECTION-A

Answer 3.

- (a) The three Legislative powers of the Union Parliament are given below :
1. The Parliament is a law-making body and it is considered as the centre of all democratic political process. It has exclusive powers to make laws on all subjects listed in Union List and Concurrent List.
2. The Parliament has power of financial control through budget discussion. For Example : Fiscal Policy.
3. It acts as an arbitrary power of other organs—Judiciary and Executive.
4. During a National Emergency, the union system of the government becomes a unitary one by granting Parliament the power to make laws on the 66 subjects of the State List. Also, all state money bills are referred to the Parliament for its approval. (Any three)
- (b) Exclusive powers of Lok Sabha :
1. Motion of No-Confidence against the government can only be introduced and passed in the Lok Sabha.
2. Money bills can only be introduced in Lok Sabha.
3. In case of deadlock between the two Houses over non-financial ordinary bill, the Lok Sabha normally prevails as a strength which includes more than twice as many members as the Rajya Sabha.
- (c) The Speaker is the presiding officer of Lok Sabha with the following powers :
1. He regulates proceedings of the House and certifies whether a bill is a money bill or not.
2. He maintains discipline in the House and puts issues to vote and announces results.
3. He presides over the joint session of the Parliament, interprets the rules and procedure of the House. His decision in parliamentary matters is final.
4. The Speaker decides the admissibility of all questions and resolutions. He communicates the decision of the House to the concerned authorities.
5. He regulates the admission of visitors and press correspondents to the galleries of the House.

6. The Speaker maintains order in the House; when a member becomes unruly he may order him/her to withdraw. (Any four)

Answer 4.

(a) The President is elected indirectly by the members of Electoral College consisting of the elected members of both the Houses of Parliament and the elected members of Legislative Assembly of the states including the National Capital Territory of Delhi and union territory of Pondicherry (Official name : as Puducherry).

The election of the President is held in accordance with the system of proportional representation by means of single transferable vote and such election is done by secret ballot.

(b) Discretionary powers of the President are :

1. He also appoints incumbent Prime Minister in case of sudden death, where the ruling legislative party is unable to meet immediately to elect a leader.

2. When the ruling party would lose majority support in Lok Sabha or when a vote of no-confidence may have been passed against, it requires a President to dissolve the Lok Sabha. Then it is at discretion of the President to whether dissolve the House or ask another party to prove majority on the floor of the House.

3. The President can dismiss ministers in case the Council of Ministers loses the confidence of the House but refuses to resign.

(c) Four Executive Powers of the President are :

1. Being the Head of the Union administration, executive orders are issued in the name of the President.

2. The President makes appointments to run the government administration.

3. For example, appointment of the Prime Minister and Council of Ministers, appointment of Chief Justice and other judges of the Supreme Court, appointment of the Governors of the State, appointment of the Attorney General of India.

4. The administration of the union territories and the border areas is the responsibility of the President.

Answer 5.

(a) Three cases that come under the Original Jurisdiction of the Supreme Court of India are :

1. Disputes between Government of India and any state, or between two or more states.

2. The original jurisdiction also extends to cases of violation of Fundamental Rights of individuals

and the court can issue several writs for the enforcement of these rights.

3. All cases in which the interpretation of the Constitution is required, can be directly filed in the Supreme Court. The Supreme Court has a power of exclusive jurisdiction in regard to questions asked on constitutional validity of Central laws.

4. Transfer of cases from Lower Courts: Under Article 139A, inserted by the 44th Amendment in 1978, the Supreme Court may transfer some cases from one court to another or to itself. It may transfer those cases which are of great importance or involving questions of law.

(b) Power of Judicial Review :

1. The Supreme Court is an interpreter of the Constitution and its decision is final. It holds a power to review law passed by the union or state legislature.

2. The Supreme Court can strike down a law that goes against Fundamental Rights; this implicitly gives Supreme Court the power of judicial review.

3. The Supreme Court (or High Courts) can examine the constitutionality of any law. If the court arrives at the conclusion that a law is inconsistent with the provisions of the Constitution, such a law is declared as unconstitutional and inapplicable.

(c) Supreme Court as a Court of Record :

1. A court of record is a court whose acts and proceedings are enrolled for perpetual memory and testimony. The judgements are in nature of the precedents *i.e.*, the High Court and other courts are bound to give same decisions in similar cases.

2. Article 129 provides that the Supreme Court shall be a court of record and shall have all the powers of such a court including the power to punish for contempt of itself.

3. Article 215 contains similar provision in respect of the High Court. Both the Supreme Court as well as the High Courts are courts of record having powers to punish for contempt including the power to punish for contempt of itself.

SECTION-B

Answer 6.

(a) Three economic causes for the revolt of 1857 were:

1. Exploitation of economic resources : India was forced to export raw materials like cotton textiles and raw silk at cheaper rates that the British industries needed urgently. India was made to accept readymade British goods which were

duty-free or at nominal duty rates while Indian products were subjected to high import duties.

2. Drain of wealth : The British purchased raw materials for their industries in England from the surplus revenues of Bengal and profits from duty-free inland trade. The drain of wealth also included the salaries, income and savings of Englishmen, British expenditure in India on the purchase of military groups, office establishment, interest on debts, necessary expenditure on the army, etc.

3. Growing unemployment : The traditional rulers had given financial support to scholars, preachers and men of fine arts. The arrival of the British led to the decline of such rulers and gradually the patronage came to an end. And all those who had depended on the patronage were impoverished. (Any three)

(b) Three military causes were :

1. Ill treatment of Indian soldiers and lower salaries : The Indian soldiers were poorly paid, they were ill fed and badly housed. British military authorities forbade the sepoys from wearing caste or sectarian marks.

2. General Service Enlistment Act : According to the General Service Enlistment Act, Indian soldiers could be sent overseas on duty but it was a taboo for a Brahmin to cross the sea. So, the British did not take into account the sentiments of the Indian soldiers.

3. Less chances of promotions : All higher posts were reserved for the British. The Indian soldiers couldn't go above the post of Subedar. Thus, the future of Indian soldiers was bleak.

4. Faulty distribution of troops : Places of strategic importance like Delhi and Allahabad had no British armies and were wholly held by the Indian soldiers.

5. Performance of the British troops : The British army suffered major reverse in the first Afghan War and the Crimean War broke the myth that the Britishers were invincible. It further was revealed to the Indian soldiers that the British army could be defeated by determined Indian army.

(Any three)

(c) Political causes of the revolt of 1857 were :

1. British policy of expansion : The British tried to expand their political power in India by four ways that were by out right wars, the system of Subsidiary Alliance, by adopting the Doctrine of Lapse and on the pretext of alleged misrule.

2. Disrespect shown to Bahadur Shah : In 1856, Lord Canning announced that after the death of Bahadur Shah his successors would not be allowed to use the imperial titles with their names and would not be known as the real princes.

3. Treatment given to Nana Sahib : Nana Sahib was the adopted son of Bajirao II, the last Peshwa. The British refused to grant Nana Saheb the pension they were paying to Bajirao II. This was widely resented in Maratha state.

4. Absentee sovereignty of the British : Since India was being ruled by the British government from England at a distance of thousand miles this was resented by the Indians. The Indians felt that they were being ruled from England and India's wealth was being drained to England and not utilized for their welfare. (Any three)

Answer 7.

(a) On 12th March, Mahatma Gandhi began a historic march from Sabarmati Ashram to Dandi and a number of people followed him. On the morning of 6th April, Gandhiji violated the Salt Law at Dandi by picking up some salt left by the sea-waves.

The government had the monopoly to manufacture and sell the salt. He had selected to attack the Salt Law because the salt tax affected all sections of society, especially the poor. Gandhiji's breaking of the Salt Law marked the beginning of Civil Disobedience Movement.

(b) The three reasons for the launching of the Quit India Movement are given below :

1. Failure of the Cripps Mission : The Cripps Mission proposed India's dominion status. It did not propose any immediate transfer of power. It was rejected as it did not bring with it the promise of Independence in the near future. It was felt among the Indians that the provisions of this mission could divide India into hundreds of independent provinces.

2. The threat of the Japanese : In 1942, the Japanese Army attacked Myanmar and marched towards India. British presence in India was an invitation to the Japanese Army to invade India. Gandhiji asked the British to quit India, i.e., immediate withdrawal of the British.

3. Disagreement between the Congress and the Muslim League : In the Lahore Session in 1940, the Muslim League put forward the demand for Pakistan. The leaders declared that Muslims in India would not get justice from the Congress.

The Congress felt that if the British withdraw from India, people would settle their differences peacefully.

(c) Four significant effects of the Quit India Movement:

1. Demonstrated the depth of nationalistic feelings in India and the capacity of Indians for struggle and sacrifice.
2. It made it clear to the British that they could no longer find it possible to rule India against the wishes of its people.
3. People of all sections of society participated in this movement, the Hindus, Muslims, Christians and Parsis and even people from the princely states participated.
4. The Quit India Movement strengthened the Congress Socialist Party because of its heroic role in the movement.

Answer 8.

(a) (i) Lord Mountbatten was the last Viceroy of India.

(ii) Lord Mountbatten came to India mainly for two reasons :

1. To restore the peace among the two warring sections : The Congress and the Muslim League.
2. Mountbatten realised that the Cabinet Mission Plan was unworkable and partition of India was inevitable. Therefore, he sought to effect the transfer of power without any delay.

(b) Three proposals under Mountbatten Plan were :

- (i) The country would be divided into two Dominions : India and Pakistan.
- (ii) The partition of Bengal and Punjab was provided the legislative assemblies of the two provinces decided in favour of the partition.
- (iii) The existing Constituent Assembly would continue to work but the Constitution framed by it would not apply to Pakistan.

(c) All India Congress Committee accepted the Mountbatten Plan because according to Maulana Azad, the Congress had no other alternative. The reason for finally accepting the Mountbatten Plan may be summarised as follows :

1. The large scale communal riots that engulfed the whole country and convinced that the only solution to the communal problem is in Partition of India.
2. The League joined the Interim Government to obstruct or not to cooperate. The experience of working with the League had convinced

the Congress that it could not have a joint administration with the League.

3. The only alternative to Partition was a federation with a weak centre. A smaller India with strong Central authority was better than a big state with a weak centre.

4. Any further contribution of British rule in India would mean a great calamity for India. The leaders felt that delay in the transfer of power could find India in the midst of a civil war.

Answer 9.

(a) Organization associated with the above emblem is United Nations Organisation or UNO. Two objectives are :

1. To maintain international peace and security and to take collective measures for the prevention and removal of threat to peace, to suppress acts of aggression or other breaches of peace.
2. To develop friendly relation among nations based on respect for the principle of equal rights and self-determination of people.
3. To achieve international cooperation in solving international economic, social, cultural, humanitarian problems and increasing respect for human rights and fundamental freedoms.
4. To be a centre for harmonizing the actions of nations in the attainment of these common ends.

(Any two)

(b) Three functions of WHO are :

1. It helps countries to improve their health system by building of infrastructure especially manpower, institution and services for the individual and community.
2. The WHO launched a programme to immunize children against six major diseases like, Measles, Diphtheria, Tetanus, Tuberculosis, Polio and Whooping cough.
3. It promotes research to cure and prevent diseases. It arranged for investigation of cancer and heart diseases in laboratories in many countries to identify diseases to improve vaccines and train research workers.
4. It works towards providing safe drinking water and adequate waste disposal. It organizes conferences, seminars and training for healthcare personnel from different countries.
5. It aims at fighting diseases and preventing them from spreading.
6. Defines standard for the strength and purity of medicine including biological products.

(vii) It publishes health journals like the Bulletin of the World Health Organization to create health consciousness among people. *(Any three)*

- (c) The principal judicial organ of UNO is the International Court of Justice.

Its composition—The court is composed of 15 judges elected to 9-year term of office by the United Nations General Assembly and Security Council sitting independently of each other. It may not include more than one judge from any nationality. Elections are held every 3 years. One-third of the seats and retiring judges may be re-elected.

Answer 10.

- (a) Dissatisfaction with the Treaty of Versailles were:

1. The treaty demanded annexation of German territories and creation of many states.
2. German colonies were forcibly taken away and Germany was divided into two parts for the benefit of Poland. Germany was burdened with huge war indemnity which she could never be paid.

3. Germany's military power was reduced. This humiliation gave rise to the spirit of revenge and Germany started looking for opportunity to do away with the harsh treaty.

- (b) Consequences of the Second World War :

1. Axis Powers made remarkable success initially but were defeated by the Allied Powers.
2. Formation of the UN to bring peace and avoid another world war.
3. After the Second World War, USA and USSR emerged as two great powers representing contrasting ideologies. They divided the world into two power blocs which led to cold war.

- (c) Chief architects of the Non-Aligned Movement :

1. Prime Minister Pandit Jawaharlal Nehru of India.
2. President Josip Broz Tito of Yugoslavia.
3. President Gamal Abdel Nasser of Egypt.
4. President Sukarno of Indonesia.



GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt *all* questions from this Part)

Question 1.

- (a) What is the normal term of office of the Lok Sabha? [1]
- (b) State the meaning of the term Question Hour. [1]
- (c) Name the Presiding officer of the Lok Sabha. [1]
- (d) State any one condition when the Parliament can legislate on subjects in the State List. [1]
- (e) Write any one circumstance when the President can declare a National Emergency. [1]
- (f) There has been a misprint in the board question paper. The correct question is :
What happens when a motion of 'No-Confidence' is passed against a Minister ? [1]
- (g) On whose advice can the President appoint the Council of Ministers ? [1]
- (h) What is meant by Appellate Jurisdiction of the Supreme Court ? [1]
- (i) On what grounds can a Supreme Court Judge be removed from office ? [1]
- (j) State one point of distinction between a District Judge and a Sessions Judge. [1]

Question 2.

- (a) What was the General Service Enlistment Act ? [2]
- (b) Name the two books that Dadabhai Naoroji authored explaining the 'Drain of India's Wealth'. [2]
- (c) Name each of the organisations founded by Jyotiba Phule and Raja Rammohan Roy. [2]
- (d) Write any two contributions of Lala Lajpat Rai to the National Movement. [2]
- (e) State any two provisions of the Indian Independence Act of 1947 that was to decide the fate of the Princely States. [2]
- (f) Write any two reasons for the acceptance of the Mountbatten Plan by the Congress. [2]
- (g) State any two objections imposed by the Treaty of Versailles on the German military power. [2]
- (h) Name the Signatory Countries of the Triple Alliance. [2]
- (i) What is meant by the term 'Veto' power ? [2]
- (j) Why was the League of Nations established ? [2]

PART-II (50 Marks)

SECTION-A

(Attempt any *two* questions from this Section)

Question 3.

The Parliament is the body of people's representatives who have Supreme power in a democracy. With reference to the Union Legislature answer the following :

- (a) How are the members of the Rajya Sabha elected ? [3]
- (b) Why is it called a Permanent House ? [3]
- (c) State any two Financial and any two Legislative powers of the Indian Parliament. [4]

Question 4.

The Council of Ministers headed by the Prime Minister, is the most Powerful Institution in the Indian Polity. In this context, answer the following :

- (a) State briefly the position of the Prime Minister in the Parliamentary system of Government. State any two powers the Prime Minister has as a leader of the Nation. [3]
- (b) Distinguish between the Council of Ministers and the Cabinet. [3]
- (c) Write any four functions of the 'Cabinet'. [4]

Question 5.

Indian has a single integrated judicial system that is Independent and Supreme. With reference to the Judiciary, answer the following :

- (a) (i) Who appoints the Judges of the High Court ?
(ii) State any two qualifications required for a person to be appointed as a High Court judge. [3]
- (b) Explain briefly the term 'Court of Record' with reference to the High Court. [3]
- (c) List any four writs that the High Court can issue for the enforcement of Fundamental Rights. [4]

SECTION-B

(Attempt any *three* questions from this Section)

Question 6.

The Second half of the 19th century witnessed the growth of a strong feeling of Nationalism. With reference to the statement, answer the following :

- (a) Write any three repressive Colonial policies of the British. [3]
- (b) State any three ways in which the Press played an important role in developing nationalism amongst Indians. [3]

- (c) Explain briefly any three differences in the methods adopted between the Early Nationalists and Radicals, in the National Movement. [4]

Question 7.

With reference to the picture given below, answer the following questions :



- (a) (i) Identify the Memorial built for those who were killed in this incident.
 (ii) Where did this incident take place ?
 (iii) Name the movement launched by Gandhi in 1920 as a consequence. [3]
 (b) Explain briefly the reason for the suspension of this particular movement by Gandhi in 1922. [3]
 (c) State any four impacts of the movement. [4]

Question 8.

With reference to the National Movement from 1930 to 1947, answer the following :

- (a) State any three features of the Programme of the Civil Disobedience Movement launched in 1930. [3]
 (b) What was the significance of the Second Round Table Conference held in 1931 ? [3]
 (c) State any four clauses of the Cabinet Mission Plan of 1946. [4]

Question 9.

With reference to the Rise of Dictatorships and the Second World War, answer the following :

- (a) State any three reasons for the Rise of Fascism in Italy. [3]
 (b) Explain any three consequences of World War II. [3]
 (c) Name the two rival blocs that fought against each other during World War II and state its signatory countries. [4]

Question 10.

The necessity to maintain International peace led to the establishment of the United Nations Organisation. With reference to the statement, answer the following :

- (a) Write any three functions of UNESCO that preserves our 'Cultural Heritage'. [3]
 (b) State the Composition of the Security Council. [3]
 (c) Write any four functions of the General Assembly. [4]

ANSWERS

PART-I

Answer 1.

- (a) 5 years
 (b) The first hour of sitting in both the Houses of Parliament is allotted for asking and answering of questions unless otherwise decided by the Speaker. This hour (which usually starts at 11 a.m.) is known as the Question Hour.
 (c) The Speaker
 (d) During the Proclamation of a National Emergency.
 (e) The President can declare a National Emergency when there is a danger of foreign aggression or threat to the peace and security of the country because of a civil war, due to the failure of the constitutional machinery in the states or if there is a threat to the financial stability of the country.
 (f) If a motion of No-Confidence is passed against a minister. The entire Ministry resigns en bloc (the Government has to resign.)
 (g) Prime Minister.
 (h) The Supreme Court is the final court of Appeal. Appellate Jurisdiction of the Supreme Court

means an appeal lies to the Supreme Court from any judgement or final order of a High Court or a Lower Court in the country.

- (i) A Supreme Court Judge can be removed by the President only if proved of misbehaviour or incapacity.
 (j) The District Judge decides civil cases related to land, property, money transactions, arbitration, guardianship, marriage, divorce and will. The Sessions Judge decides criminal cases like murders, theft, dacoity, pick-pocketing, etc. Sessions Judge has no administrative power but District Judge has.

Answer 2.

- (a) According to traditional belief, it was considered a taboo for a Brahmin to cross the seas. The British Parliament passed the General Service Enlistment Act in 1856. As per this Act, Indian soldiers could be sent overseas on duty. The Act did not take into account the religious sentiments of the Indian soldiers. The Brahmin soldiers saw in this a danger to their caste which led to a feeling of resentment, against the Britishers among them.

- (b) Poverty and Un-British Rule in India
- (c) Jyotiba Phule – Satya Shodhak Samaj
Raja Rammohan Roy – Brahmo Samaj
- (d) **Contributions by Lala Lajpat Rai :**

1. He transformed the freedom struggle into the agitation of the millions and the common masses. Through his speeches and writings, he accelerated its pace and widened its base. He presided over historic session of the Congress in 1920. It was here that the resolution of "Non-Cooperation" was adopted by the Congress.

2. He led the demonstration against the Simon Commission. He was assaulted by a British Sergeant in the ensuing lathi charge and could not recover from it. He sacrificed his life so that India could win its freedom before his death, he said, "Lathi blows inflicted on me would prove one day as nails in the coffin of the British Empire."

- (e) According to the Indian Independence Act of 1947, the Princely States would become independent and all the powers exercised by the British authority were to be terminated. All treaties and agreements made by the British with reference to States would lapse from August 15, 1947. They would be free to associate themselves with either of the two Dominions or remain independent.

- (f) **Reasons for the acceptance of the Mountbatten Plan by the Congress were :**

1. The large-scale communal riots that engulfed the whole country convinced all that the only solution to the communal problem lay in the Partition of India.

2. The League had joined the Interim Government to obstruct and not to cooperate. Experience of working with the League had convinced the Congress that it could not have a joint administration with the League.

- (g) 1. The German Army was restricted to a force of 1,00,000 soldiers and the Navy was limited to 15,000 men and 36 ships.
2. The Air Force and submarines of German Army were banned.
- (h) Germany, Austria-Hungary and Italy were the signatory countries of the Triple Alliance.
- (i) Each member of the UN Security Council has one vote. Decisions on procedural matters are made by an affirmative vote of nine members, including the concurring votes of all five permanent members. The negative vote of a permanent member is called a veto. The Council is powerless to act if any of the five permanent members uses the Veto power.

- (j) League of Nations was formed as a consequence of the First World War. It was formed to prevent war and promote international cooperation (Peace & security).

PART-II SECTION-A

Answer 3.

- (a) The representatives of each State in the Rajya Sabha are elected by the elected members of the Legislative Assembly in accordance with the system of proportional representation by means of a 'single transferable vote'.

- (b) Rajya Sabha is called a Permanent House because if the Lok Sabha is dissolved before or after the declaration of a National Emergency, the Rajya Sabha becomes the sole de facto and de jure Parliament, *i.e.*, it takes over the functions of the Parliament. Thus, it cannot be dissolved.

- (c) **Legislative powers of the Parliament :**

1. The Parliament has exclusive powers to make laws with respect to matters mentioned in the Union List. The Parliament and the State Legislatures both have the right to make laws on the subjects mentioned in the Concurrent List but in the case of a conflict, the law made by the Parliament shall prevail.

2. The Parliament possesses residuary powers, meaning that it can make laws with respect to all those matters that are not mentioned in any of the three lists.

Financial powers of the Parliament:

- 1. The Parliament passes the Union Budget containing estimates of receipts and expenditure of the Government for a financial year.
- 2. The salaries and allowances of MPs, Ministers and Judges of the Supreme Court and the High Court are determined by the Parliament.

Answer 4.

- (a) 1. The Prime Minister heads the Council of Ministers and aids and advises the President.
2. He is the real executive of the Indian Union.
3. The Prime Minister is the chief spokesperson and defender of the Government in the Parliament.
4. The Prime Minister exercises vast authority both in legislation and finance.

Prime Minister as a leader of the Nation :

- 1. The Prime Minister represents the nation, when he speaks, the whole nation is supposed to be speaking through him.
- 2. During the national crisis like war, even the opposition parties support the Prime Minister.

(b)

| Council of Ministers | Cabinet |
|---|--|
| 1. The Council of Ministers consists of all categories of Ministers – Cabinet Ministers, Ministers of State and Deputy Ministers. | 1. The Cabinet is a smaller group consisting of some 25 senior Ministers holding important portfolios such as Defence, Finance, Home, etc. |
| 2. The Prime Minister may or may not consult the other Ministers, below the rank of Cabinet Ministers. | 2. They are the most trusted colleagues of the Prime Minister. The Prime Minister always consults them. The decisions of the Cabinet are binding on all the members. |
| 3. In the day-to-day working of the government, the Council of Ministers, as a whole, rarely meets. | 3. The Cabinet is a small cohesive group of senior Ministers who determine the policies and programmes of the Government; so they meet as frequently as possible. |

(c) **Functions of the Cabinet :**

- Policy Making:** The Cabinet formulates both external and domestic policies of the Government.
- Coordinates the Functioning of Various Ministers:** The Cabinet coordinates the working of various departments for the smooth implementation of government policies.
- Appointments:** All major appointments, though made by the President, are decided upon by the Cabinet.
- Introduction of Bills:** The Cabinet and the departments of administration take initiative in the legislation of the country.

Answer 5.

- (a) (i) The Chief Justice of a High Court is appointed by the President of India in consultation with the Chief Justice of the Supreme Court and the Governor of the concerned state. The other Judges of the High Court are also to be appointed in the same manner except that in their case the Chief Justice of the High Court shall also be consulted.
- (ii) **Qualifications for appointment as a High Court Judge:**
- One should be a citizen of India.

2. One should have held a judicial office in India for at least 10 years.

3. One should have been an advocate of a High Court for at least ten years.

- (b) The High Court is a 'Court of Record' like the Supreme Court. It means its judgements and orders are preserved as a record to be referred to by its courts in future cases. They can be produced as precedents. The law laid down by the High Court is binding on all subordinate courts in the concerned state. But it does not bind the other High Courts, although it is of great significance and can be produced in support of an argument.
- (c) All High Courts have the power to issue writs for the enforcement of Fundamental Rights.

The writs that a High Court can issue are :

- Habeas Corpus
- Mandamus
- Prohibition
- Quo Warranto

SECTION-B**Answer 6.**(a) **Repressive Colonial Policies:**

- Lord Lytton organised a Grand Delhi Durbar in 1877 to proclaim Queen Victoria as the Empress of India. Lakhs of rupees were spent on the event but nothing was done for Indians who were in the grip of a famine.
- The Vernacular Press Act (1878) introduced by Lord Lytton forbade vernacular papers to publish any material that might excite feelings of dissatisfaction against the British Government. This Act was not applicable to English newspapers. The editors who opposed the Act were sentenced to jail.
- The maximum age limit for the Indian Civil Service Examination was reduced from 21 to 19 years, thus, making it difficult for the Indians to compete for it.

(b) **Role of Press in developing nationalism amongst Indians:**

- It was through the Press that the message of patriotism and modern liberal ideas of liberty, freedom, equality, home rule and independence, spread among the people.
- The Press carried on daily criticism of the unjust policies of the British Government in India and exposed the true nature of British rule in India.
- It made possible the exchange of views among different social groups from different parts of the country.

(c)

| Early Nationalists | Radicals |
|---|--|
| 1. The Early Nationalists wanted to achieve self-government and they strove for autonomy within the Empire and not for absolute independence. | 1. The Radicals aimed for nothing less than Swaraj as it existed in the United Kingdom. |
| 2. They believed in constitutional methods and worked within the framework of the law. | 2. They were assertive in their approach. |
| 3. They held good positions under the British government. | 3. They denounced British rule and defied it. |
| 4. They had faith in the British sense of justice and fair play. | 4. They rejected British rule and held it responsible for the prevailing poverty of the Indian people. |

Answer 7.

- (a) (i) Jallianwala Bagh Memorial.
(ii) Jallianwala Bagh in Amritsar, Punjab.
(iii) Non-Cooperation Movement.
- (b) The tragedy at Chauri-Chaura, a village in Gorakhpur district in Uttar Pradesh, occurred on February 5, 1922. A procession of about 3,000 peasants marched to the nearby police station to protest against the police officer who had beaten some volunteers picketing a liquor shop. The police fired at the peasants. The infuriated demonstrators set the police station on fire, killing 22 policemen who were inside the police station. There were also a few violent incidents in other parts of the country. Gandhiji, a firm believer in 'Ahimsa' was greatly shocked at these incidents and he withdrew the Non-Cooperation Movement on February 12, 1922.
- (c) 1. **The National Movement became a Mass Movement** : The Indian national movement, for the first time in history, acquired a real mass base with the participation of different sections of Indian society such as peasants, workers, students, teachers and women.
2. **Instilled Confidence among the people** : The movement undermined the power and prestige of the British Government. It generated a desire for freedom and inspired people to challenge the colonial rule.
3. **The Congress became an organised fighting force** : The weapons of Satyagraha and

Non-Cooperation changed the character of the Congress overnight. It transformed the Indian National Congress from a deliberative assembly into an organised fighting force, pledged to revolution.

4. **Fostered Hindu-Muslim Unity** : It fostered Hindu-Muslim unity which could be seen in the merger of the Khilafat issue with this movement.

Answer 8.

- (a) Gandhiji reached Dandi on 5th April, 1930 and next morning Gandhiji violated the Salt Laws by picking up some salt left by the sea waves. Gandhiji's campaign against the Salt Laws was a signal to disobey civil laws.

Features of the Programme of the Civil Disobedience Movement:

1. Defiance of Salt Laws.
2. Boycott of liquor.
3. Boycott of foreign cloth and British goods of all kinds.
- (iv) Non-payment of taxes and revenues.

- (b) **Significance of the Second Round Table Conference :**

It was attended by Gandhiji as a sole representative of the Congress, according to the terms of the Gandhi-Irwin Pact of 1931. The conference was soon deadlocked on the minorities issue, with separate electorates being demanded not only by Muslims but also by the Depressed Classes, Sikhs, Indian Christians and Anglo-Indians.

The question of Independence or setting up of a responsible Government receded into the background. The British government refused to concede the immediate grant of dominion status, Gandhiji returned to India disappointed.

- (c) **Clauses of the Cabinet Mission Plan :**

1. **Federal Union**: There was to be a federal union of the British Provinces and the Princely States. The Union Government (Central Government) should deal with the following subjects: Foreign Affairs, Defence and Communication.
2. **A Constitution making Body** : A Constituent Assembly would frame the Union Constitution. It was to consist of 389 members out of which the provinces were to elect 296 members, whereas Princely States were allocated 93 seats.
3. **Provincial Autonomy** : The Provinces would enjoy full autonomy for all subjects other than the Union Subjects.
4. **Grouping of Provinces** : The British Provinces would be divided into three groups namely 'Group A', 'Group B', 'Group C'. Each group could determine the provincial subjects to be taken in common.

Answer 9.**(a) Reasons for rise of Fascism in Italy :**

1. Dissatisfaction with the Treaty of Versailles: Italy joined the War on the side of the Allies. Among Italians the feeling was that they had won the War but lost the Peace. Italy had much to contribute to the success of the Allies in the War. But she could have no valuable addition to her territory. When it came to dividing the spoils of War, her allies deserted her.

2. Economic Factors : Economic condition in Italy after the War was very bad. War debts and budget deficits caused lots of difficulty. Everyone in the country felt the pinch of post-war inflation. There was widespread unemployment in the country which led to agrarian riots and strikes.

3. Political Instability and Inefficient and Corrupt Democratic Governments : The post-war democratic governments in Italy were weak; they could not respond properly to the needs and aspirations of the people. The governments under Nitti and Giolitti in Italy were unable to control industrial and agrarian disorders. Popular discontent took the form of strikes and riots.

(b) Refer to ICSE Paper 2020, Answer 10. (b).

(c) The two rival blocs that fought against each other during the World War II were :

1. Allied Powers.

2. Axis Powers.

Signatory Countries :

1. Allied Powers : The Allied Powers included countries of Britain, France, (except during the German occupation, 1940-44), the Soviet Union, China and the United States of America.

2. Axis Powers : Axis Powers included Germany, Italy and Japan. These countries came together as a result of the resentment due to the unjust treatment meted out to them after the World War I.

Answer 10.

(a) 1. It helps the member states in the preservation of their cultural heritage and encourages

translation of rare manuscripts. It adopted a Convention to ensure that member states take measures to protect monuments of artistic or historic interest.

2. It encourages cultural interchange. UNESCO provides travel grants to writers and artists under a project named Mutual Appreciation of Eastern and Western Cultural Values.

3. It gives every possible encouragement to artistic creations in the field of literature and fine arts.

4. It plays a vital role in distribution of knowledge about the human rights.

(b) Composition of the Security Council :

1. The Council consists of 15 members. It has five permanent members – China, France, Russia, Britain and the USA.

2. The regional representation of the ten non-permanent members is :

Afro-Asian countries (5)

Latin American countries (2)

West European and other countries (2)

East European countries (1)

3. The ten non-permanent members are elected by the General Assembly by a two-third majority for the term of two years. A retiring member is not eligible for immediate re-election.

4. The Presidency of the Council rotates monthly, according to the English alphabetical listing of its member states.

(c) Functions of the General Assembly :

1. To discuss any question relating to international peace and security.

2. The General Assembly regulates the working of other organs and agencies of the United Nations.

3. The General Assembly considers and approves the budget of the United Nations.

4. The Assembly elects the non-permanent members of the Security Council and the members of the Economic and Social Council.



QUESTIONS

PART-I (30 Marks)

(Attempt *all* questions from this Part)

Question 1.

- (a) Name the bill that cannot originate in the Rajya Sabha. [1]
- (b) What is meant by the term 'quorum' ? [1]
- (c) What is the maximum gap allowed between the two parliamentary sessions ? [1]
- (d) Who administers the Oath of Office to the Council of Ministers ? [1]
- (e) What is an Ordinance ? [1]
- (f) State any one reason why the President is elected indirectly. [1]
- (g) State any one administrative function of the Cabinet. [1]
- (h) Name any two writs issued by the Supreme Court. [1]
- (i) Name the highest criminal court in a district. [1]
- (j) What is meant by Lok Adalats ? [1]

Question 2.

- (a) Mention any two economic factors responsible for the growth of nationalism in India. [2]
- (b) Name the two Presidents under whom the first two sessions of the Indian National Congress were held. [2]
- (c) Name the nationalist who said, 'Swaraj is my birthright and I shall have it'. State any one of his contributions to the National Movement. [2]
- (d) State any two objectives of the Muslim League. [2]
- (e) State any two causes that led to the Civil Disobedience Movement in 1930. [2]
- (f) Name the last Viceroy of India. State any one of the provisions of the Indian Independence Act, 1947. [2]
- (g) Give any two similarities between the ideologies of Nazism and Fascism. [2]
- (h) Name the countries that formed the Axis Bloc during the World War II. [2]
- (i) Give the full form of UNESCO. [2]
- (j) State any two principles of 'Panchsheel' in the Non-Aligned Movement. [2]

PART-II (50 Marks)

SECTION-A

(Attempt any *two* questions from this Section)

Question 3.

With reference to the Union Parliament, answer the following questions :

- (a) How many members may be nominated to the Lok Sabha and the Rajya Sabha ? Give one reason as to why they may be nominated to the Lok Sabha. [3]
- (b) Mention any three qualifications required for a member to be elected to the Lok Sabha. [3]
- (c) What is meant by the term 'Session'? Name the three Sessions of the Union Parliament. [4]

Question 4.

The President and the Vice-President are part of the Union Executive.

In this context, answer the following questions :

- (a) State any three qualifications required for a candidate to be elected as the Vice-President of India. [3]
- (b) State the three functions of the Vice-President. [3]
- (c) Explain briefly any two Legislative and any two Executive powers of the President. [4]

Question 5.

Our Judicial system has a Supreme Court as its Apex, followed by the High Court and other Subordinate Courts. In the light of this statement, explain the following :

- (a) Any three types of cases in which the Supreme Court exercises its Original Jurisdiction. [3]
- (b) Any three ways by which the Constitution ensures the Independence of the Judiciary. [3]
- (c) 'Advisory' and 'Revisory' Jurisdiction of the Supreme Court. [4]

SECTION-B

(Attempt any *three* questions from this Section)

Question 6.

Numerous causes gave rise to the First War of Independence and its consequences led to several changes in the British Government in India. In this context, answer the following:

- (a) Explain any three political causes of the Revolt of 1857. [3]
- (b) Briefly explain the immediate cause of the Great Revolt. [3]
- (c) State any four changes in the administration of the British Government as a consequence of the Revolt. [3]

Question 7.

The Quit India Resolution in 1942 was one of the final calls given by Gandhi for the Britishers to leave India. Moving towards Independence, Lord Mountbatten's Plan was significant. In this context, answer the following :

- (a) State two reasons for the launching of the Quit India Movement. [3]
- (b) Give any three effects of the Quit India Movement launched by Gandhi in 1942 that was significant to the last phase of the National Movement of India. [3]
- (c) Give any four clauses of the Mountbatten Plan of 1947? [4]

Question 8.

Study the picture given below and answer the following questions :



- (a) (i) Identify the leader given in the picture.
(ii) Name the Political party and Military Organisation that he formed. [3]
- (b) State any three objectives of the Political party that he founded. [3]
- (c) Mention any four objectives of the Military Organisation that he formed. [4]

Question 9.

With reference to the Two Major World Wars in the 20th century, answer the following questions :

- (a) Explain briefly the causes of World War I with reference to Nationalism and Imperialism. [3]
- (b) Explain briefly the territorial rearrangements as a result of World War I. [3]
- (c) State any four causes that led to the Second World War. [4]

Question 10.

With reference to the United Nations and its Specialised Agencies, answer the following :

- (a) Mention any three functions of the International Court of Justice. [3]
- (b) State the composition of the General Assembly. [3]
- (c) State any two functions of the UNICEF and any two functions of WHO. [4]

ANSWERS**PART-I****Answer 1.**

- (a) Money bills cannot originate in the Rajya Sabha.
- (b) Quorum means the prescribed minimum number of members to be present to hold the meeting of a collective body or any House of the Parliament such as Lok Sabha or Rajya Sabha. The Quorum to constitute a meeting of the House is one-tenth of the total strength of the House.
- (c) The maximum gap allowed between the two parliamentary sessions is six months.
- (d) The President administers the Oath of Office to the Council of Ministers.
- (e) An Ordinance is a temporary law that is enforced when the Parliament is not in session. The power to pass an ordinance is accorded to the President of India and is passed in cases of emergency.
- (f) The President is the nominal head. The real power lies in the hands of Prime Minister and the Parliament. Hence, it would be an anomaly if the

President is elected directly and not given any power.

- (g) The Cabinet advises the Prime Minister on certain constitutional policies and procedural issues.
- (h) **Two writs issued by the Supreme Court are :**
 1. Writ of Habeas Corpus
 2. Writ of Mandamus
- (i) The Sessions Court is the highest criminal court in a district.
- (j) Lok Adalats mean 'People's Courts'. They are legal forums which encourage friendly compromise of legal disputes between the contending parties.

Answer 2.

- (a) **Two economic factors responsible for the growth of nationalism in India were :**
 1. British economic policies were against the interest of Indian trade and industry.
 2. Educated Indians were denied promotions and employment.

PART-II

SECTION-A

- (b) Womesh Chunder Bonnerjee and Dadabhai Naoroji were the two Presidents under whom the first two sessions of the Indian National Congress were held.
- (c) Bal Gangadhar Tilak made the statement, '*Swaraj is my birthright and I shall have it*'. In 1893, he started the celebration of the Ganapati festival and the Shivaji festival in 1895. The object was to instil in the masses a spirit of discipline and patriotism.
- (d) **Two objectives of the Muslim League were :**
1. Protecting the political and other rights of the Muslims so that they could extend the needs and sentiments of the Indian Muslims before the British government.
 2. Propagating the sentiment of loyalty for the British government amongst the Muslims and removing misunderstanding about the Muslims.
- (e) **The causes that led to the launch of Civil Disobedience Movement in 1930 were :**
1. The British government appointed an all white commission consisting of 7 members known as the Simon Commission, hurting Indian sentiments.
 2. Declaration of Poorna Swaraj at Lahore session (1929).
- (f) Lord Mountbatten was the last Viceroy of India.
Two provisions of the Indian Independence Act, 1947 :
1. On 15th August 1947, after the Partition of India, two independent dominions, India and Pakistan would be established.
 2. There would be a Governor-General for each of the dominions.
- (g) **Two similarities between Nazism and Fascism were :**
1. Both propagated totalitarian ideologies that regulated all aspects of private and public spheres.
 2. Both wanted to prevent the spread of communism in their respective countries.
- (h) During the World War II, the Axis Bloc included countries such as Italy, Japan and Germany.
- (i) The full form of UNESCO is United Nations Educational, Scientific and Cultural Organisation.
- (j) **Two principles of 'Panchsheel' in the Non-Aligned Movement were :**
1. Mutual respect for each other's territorial integrity and sovereignty.
 2. Mutual non-aggression.

Answer 3.

- (a) The President of India can nominate two members in Lok Sabha and twelve members in Rajya Sabha of those having special knowledge and practical experience in fields of literature, art, science or social service.

He nominates two members in the Lok Sabha from the Anglo-Indian community, if he feels that this community has not been adequately represented in this House.

- (b) **Three qualifications needed for a member to be elected to the Lok Sabha are :**

1. He/She should be a citizen of India.
2. He/She should not be less than 25 years of age.
3. He/She should not be a proclaimed criminal, that is, he or she should not be a convict, a confirmed debtor or otherwise disqualified by law.

- (c) The session means a period during which a House meets to conduct its business. The session of each House of Parliament are summoned by the President.

Three sessions of the Union Parliament are : (a) Budget Session (February-May), (b) Monsoon Session (July-September) and (c) Winter Session (November-December).

Answer 4.

- (a) **Three qualifications needed for a candidate to be elected as the Vice-President of India are :**

1. Must be a citizen of India.
2. Must have completed 35 years of age.
3. Must be eligible to be a member of the Rajya Sabha.

- (b) **Three functions of the Vice-President are as follows :**

1. He is the Ex-Officio Chairman of the Rajya Sabha.
2. He presides over the sessions of the Rajya Sabha.
3. In the time of crisis or any vacancy in the office of the President, the Vice-President shall act as the President until the election of a new President.

- (c) **Legislative powers :** The President of India is an integral part of the Union Parliament. The legislative powers of the President may be discussed under the following heads :

1. Power to summon and prorogue the Parliament and dissolve the Lok Sabha : The President has the power to summon and prorogue the Houses of Parliament and to dissolve the Lok Sabha. The power to summon Parliament is subject to the condition that six months shall not intervene between the last sitting in one session and first sitting in the next session. The President has the power to dissolve the Lok Sabha. The Rajya Sabha is a permanent body, not subject to dissolution.

2. Nominating members to the Houses : The President nominates twelve members to the Rajya Sabha from among persons having special knowledge or practical experience in these matters—literature, science, art or social service.

The President may nominate two members of the Anglo-Indian community to the Lok Sabha, in case that community is not adequately represented in the House.

Executive Powers : The Constitution says that the "Executive power of the Union shall be vested in the President." The executive power embraces the following activities of the Union.

1. Head of the Union Executive : All executive orders are issued in the name of the President.

2. Formation of the Council of Ministers : The Constitution lays down that the Prime Minister is to be appointed by the President and the other Ministers are appointed by the President on the advice of the Prime Minister. It is the duty of the Prime Minister to communicate to the President all decisions of the Council of Ministers.

Answer 5.

(a) Refer to ICSE Paper 2020, Answer 5 (a).

(b) **1. Appointment of Judges :** Neither political bias nor personal favouritism would play any part in the appointment of Judges. It has enhanced independence of the judiciary.

2. Security of Tenure : A judge can remain in office till he has attained the age of 65 years. He can be removed by the President on the ground of proven misbehaviour or incapacity. It means that an Address can only be presented after an allegation has been thoroughly examined by some impartial tribunal.

3. Salaries are charged on the Consolidated Fund of India : Judge's salaries and allowances shall not be varied to their disadvantage during their term of office.

4. No discussion shall take place in Parliament with respect to the conduct of any judge : In the discharge of his duties.

5. Genuine criticism of a judgement is allowed, but nothing should be done to lower the authority or dignity of the court.

6. Prohibition of practice after retirement : A retired judge of the Supreme Court cannot plead any case in any court or tribunal in India.

(Any three points)

(c) **Advisory Jurisdiction :** Under Article 143 of the Constitution, President can seek advisory opinion of the Supreme Court when it appeals to him that a question of law or fact has arisen, or is likely to arise, which is of such a nature and of such public importance that it is expedient to obtain the opinion of the Supreme Court upon it. The President is not bound to accept the opinion of the Supreme Court. The Supreme Court is not bound to give its advice.

Revisory Jurisdiction : Under Article 137, the Supreme Court can revise its own judgement, order or direction. Besides, Article 138 and Article 139 provides that the Parliament by law can extend the jurisdiction of the Supreme Court.

SECTION-B

Answer 6.

(a) Refer to ICSE Paper 2020, Answer 6 (c).

(b) **1.** The immediate cause of the War of Independence was the introduction of Enfield Rifles in place of the old iron made Brown Bess Guns. The cartridges to be used for the Enfield Rifles were greased with the fat of cows and pigs. The cow, as we know, is sacred for the Hindus and the Muslims consider pig as unclean. The information about the greased cartridges spread like wildfire. The whole Bengal Army was seized with panic as it went against their religious sentiments.

2. On 24th April, 1857, some soldiers stationed at Meerut also refused to use the cartridges. On 9th May, 1857, they were severely punished for this. This incident sparked off a general mutiny among the sepoys of Meerut. On 10th May, 1857, these rebel soldiers killed their British officers, released their imprisoned comrades and hoisted the flag of revolt. This was the official beginning of the 'Great Revolt'.

(c) **The Revolt of 1857 changed the administration of the British government in the following ways:**

1. The administration of India was transferred from the East India Company to the British Crown.
2. India was to be administered by the Secretary of State and his fifteen-member Council through the Viceroy.
3. The Governor General became the Viceroy and the representative of the Crown in India.
4. Salary and allowance were to be found out of revenue of India.

Answer 7.

- (a) Refer to ICSE Paper 2020, Answer 7 (b).
 (b) Refer to ICSE Paper 2020, Answer 7 (c).
 (c) Refer to ICSE Paper 2020, Answer 8 (b).

Answer 8.

- (a) 1. This is the picture of Netaji Subhash Chandra Bose.
 2. The political party that Netaji formed was the 'Forward Bloc' and the military organization developed by Netaji was 'Indian National Army' or INA.
- (b) **Three objectives of the political party 'Forward Bloc' are as follows :**
1. Abolition of the Zamindari system.
 2. Introduction of a new monetary and credit system.
 3. Liberation of India.
- (c) **Four objectives of the military organisation or 'Indian National Army' or 'INA' are as follows :**
1. To organise an armed revolution to fight the British army with modern arms.
 2. To form a provisional government of free India.
 3. The motto of the INA was 'unity, faith, sacrifice'.
 4. To train people for armed struggle inside and outside the country.

Answer 9.

- (a) **As far as the Nationalism and Imperialism contexts are concerned, the causes of World War I are as follows :**
1. Aggressive nationalism meant love for one's own country and hatred for the other countries. Each nation thought about its own national interests and did not care for the interests of the other nations. These countries developed expansionist policies in the name of nationalism. Every country began to increase her military power. The assassination of Archduke Ferdinand

also hurt the nationalistic feelings of the people of Austria. They were backed by various other countries which ultimately led to the outbreak of the war. The unsatisfied nation spirit of Balkans, discontentment among Italians also helped fuel the war.

2. Imperialism is when a country takes over new lands or countries and makes them subject to its rule. By 1900, the British Empire extended over five continents and France had to control large areas of Africa. With the rise of industrialism, new markets were needed.

3. The amount of lands 'owned' by Britain and France increased the rivalry with Germany who had entered the scramble to acquire colonies late and only had small areas of Africa.

- (b) Germany lost World War I. In the 1919, the Treaty of Versailles was signed. The victorious powers (the United States, Great Britain, France and other allied states) imposed punitive territorial, military and economic provisions on the defeated Germany.

1. In the west, Germany returned Alsace-Lorraine to France. It had been seized by Germany more than 40 years ago.

2. Further, Belgium received Eupen and Malmedy; the industrial Saar region was placed under the administration of the League of Nations for 15 years and Denmark received Northern Schleswig. Finally, the Rhineland was demilitarised; that is, no German military forces or fortifications were permitted there. In the east, Poland received parts of West Prussia and Silesia from Germany.

3. In addition, Czechoslovakia received the Hultschin district from Germany; the largely German city of Danzig became a free city under the protection of the League of Nations and Memel, a small strip of territory in East Prussia along the Baltic Sea, was ultimately placed under Lithuanian control.

4. Outside Europe, Germany lost all its colonies. In sum, Germany forfeited 13 per cent of its European territory (more than 27,000 square miles) and one-tenth of its population (between 6.5 and 7 million people).

- (c) **Four causes that spearheaded the Second World War are as follows :**

1. Italian Fascism of the 1920 and Nazi spirit in Germany.

2. Japanese militarism and aggression on China.
3. Hitler's invasion of Poland.
4. Failure of League of Nations.

Answer 10.**(a) Three functions of the International Court of Justice are as follows :**

1. To settle disputes between member states.
2. To give advisory opinions on legal matters referred to it by authorized UN organs and specialised agencies, when the court is authorised by the General Assembly.
3. The ICJ is a judicial institution that decides cases on the basis of international law as it exists on the date of the decision. It cannot formally create law as it is not a legislative organ.

(b) The General Assembly shall consist of all the members of the United Nations. Each member state shall have not more than five representatives

in the General Assembly. Each state has only one vote. It is a kind of Parliament. At the starting of each session the Assembly elects a new President and 21 Vice-Presidents. The Presidency rotates each year among five group of state.

(c) Two functions of the UNICEF are as follows :

1. To render assistance in providing protective food like milk, meat, fish and fat to the children throughout the world. It also takes care of interests of women and pregnant mothers.
2. To provide funds for training of health and sanitation workers, nutritionists and creche workers.

Two functions of WHO are as follows :

1. It helps the countries to build-up infrastructure in health.
2. It promotes research for developing new technologies in health, nutrition, maternal and child care, etc.

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GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt *all* questions from this Part)

Question 1.

- (a) State any one federal feature of the Indian Constitution. [1]
- (b) How are the Rajya Sabha members elected ? [1]
- (c) Who presides over the Joint Session of the two Houses of Parliament ? [1]
- (d) Under what condition can a non-member of Parliament be made a Minister ? [1]
- (e) When can the Speaker of the Lok Sabha cast his vote ? [1]
- (f) When can the President use his Discretionary power to appoint the Prime Minister ? [1]
- (g) What is meant by 'Collective Responsibility' of the Cabinet ? [1]
- (h) How long can the Rajya Sabha retain the money bill sent by the Lok Sabha ? [1]
- (i) State one other qualification required to become a Judge of the High Court, apart from Indian citizenship. [1]
- (j) Mention one reason to state that the Lok Adalat has its own advantage. [1]

Question 2.

- (a) Mention any two Repressive Colonial policies of Lord Lytton. [2]
- (b) Name the two main Associations that were the precursors of the Indian National Congress. [2]
- (c) Give the names of two leaders who led the Home Rule Movement in India. [2]
- (d) What was the Khilafat Movement ? [2]
- (e) State any two provisions of the Rowlatt Act passed by the Government in 1919. [2]
- (f) Mention any two objectives of the Indian National Army. [2]
- (g) Why did Mahatma Gandhi start his historic march to Dandi ? [2]
- (h) State the significance of the Policy of Appeasement as a cause for the Second World War ? [2]
- (i) Give the reason as to why Japan invaded China. [2]
- (j) Mention any two functions of UNESCO in the field of Education. [2]

** Answer is not given due to change in the present syllabus.

PART-II (50 Marks)

SECTION-A

(Attempt any *two* questions from this Section)

Question 3.

The Powers and Functions of the Indian Parliament are wide ranging. In this context answer the following :

- (a) Explain three ways by which the Legislature exercises control over the Executive. [3]
- (b) Mention any three special powers of the Rajya Sabha that is usually not enjoyed by the other House. [3]
- (c) Mention any two Judicial powers and any two Electoral powers of the Indian Parliament. [4]

Question 4.

The Union Executive which consists of the President, Prime Minister and the Council of Ministers is a powerful body in a Parliamentary Democracy. In this context answer the following questions :

- (a) State the position of the Prime Minister and state any two of his powers in relation to the President. [3]
- (b) Mention the three categories of Ministers in order of their rank and status. [3]
- (c) Mention any four Legislative powers of the Cabinet. [4]

Question 5.

With reference to the powers and functions of the High Court. Explain briefly the meaning and scope of the following:

- (a) Its Appellate Jurisdiction. [3]
- (b) The High Court as a Court of Record. [3]
- (c) Judicial Review. [4]

SECTION-B

(Attempt any *three* questions from this Section)

Question 6.

With reference to the rise of 'National Consciousness' in India, explain the following :

- (a) The influence of Western Education. [3]
- (b) Any three contributions of Raja Rammohan Roy. [3]
- (c) The development of Modern means of Transport and Communication.** [4]

Question 7.

The conflict between the two sections of the Congress came to surface in its Session in 1906 at Calcutta. In this context explain the following :

- (a) The Split in the Congress in 1907. [3] (b) How did the Congress and the Muslim League respond to the Cabinet Mission Plan ? [3]
- (b) With reference to the picture given below, answer the following : [3] (c) Mention any four clauses of the Cabinet Mission Plan. [4]



- (i) What were the three personalities popularly known as ?
- (ii) Which section of the Congress did they represent?
- (iii) Mention two of their popular Beliefs.
- (c) State any four methods that they advocated for the achievement of their aims. [4]

Question 8.

The period between 1920 to 1947 was marked with major events and reforms that finally led us to our Independence. In this context, answer the following questions :

- (a) State three provisions of the Gandhi-Irwin Pact as a result of the Civil Disobedience Movement. [3] (b) Explain the immediate cause of the First World War. [3]
- (b) Explain the consequences of the Second World War with reference to the Cold War. [3]
- (c) Mention any four terms of the Treaty of Versailles which affected Germany after World War I. [4]

Question 9.

The 1914 and 1939 Wars that engulfed almost the entire world, were known as the World Wars due to its unprecedented impact and damage. In this context, answer the following :

- (a) Explain the immediate cause of the First World War. [3]
- (b) Explain the consequences of the Second World War with reference to the Cold War. [3]
- (c) Mention any four terms of the Treaty of Versailles which affected Germany after World War I. [4]

Question 10.

The horrors of the two World Wars, led to the formation of the United Nations Organization, while the formation of the Non-Aligned Movement followed later. In this context, answer the following :

- (a) Mention any three aims and objectives of the United Nations Organization. [3]
- (b) Explain any three functions of the Security Council. [3]
- (c) Explain any four factors that led to the formation of the Non-Aligned Movement. [4]

ANSWERS

PART-I

Answer 1.

- (a) They are :
1. A written Constitution.
 2. Bicameral Legislature.
 3. An independent judiciary/(Supreme Court is the Final Interpreter of the Constitution).
 4. Division of powers/(between the Union and the States) (Any one point)
- (b) The representatives of each state in the Rajya Sabha are elected indirectly by the elected members of the Legislative Assembly of each state in accordance with the system of proportional representation by means of a single transferable vote.
- (c) The Speaker of the Lok Sabha presides over the joint session of the two Houses of Parliament.
- (d) Normally, only the members of Parliament are appointed as Ministers. In case, a non-member is appointed as a Minister, he must be elected or nominated to the Parliament within six months from the date of his appointment as per the desire of the Prime Minister. Failing this, he will have to resign from the post of a Minister.
- (e) The Speaker of the Lok Sabha puts the issues to vote and announces the results. The Speaker does not vote in the House, except when there are equal votes on both sides, i.e., the Treasury Benches and the Opposition.
- (f) If no political party has a clear majority and a coalition of parties forms the government in such a situation, the President can use his discretion and appoint the Prime Minister who in his view can form a stable government.
- (g) The Cabinet is collectively responsible to the Parliament and has to resign if it loses the confidence of the Lok Sabha. It means that all ministers swim and sink together.
- (h) Money bills can only be introduced in the Lok Sabha, and upon being passed, are sent to the Rajya Sabha, where it can be deliberated on for up to 14 days.

(i) He should not be over 62 years and he should held a judicial office in the territory of India for at least ten years.

(j) It is generally referred as the 'court of the common people'. It solves cases through friendly compromise among the disputed parties.

Advantages :

1. They are quick and inexpensive.
2. Work with a spirit of compromise and not to prolong litigation.
3. Their judgements are final and not for appeal.
4. Reduce the load of work on other courts.

Answer 2.

(a) **Two repressive colonial policies of Lord Lytton were :**

1. Lord Lytton organized a Grand Delhi Darbar in 1877 to proclaim Queen Victoria as the Empress of India. Lakhs of rupees were spent on the event but nothing was done for Indians who were in the grip of a famine.
2. Lord Lytton introduced the *Vernacular Press Act* (1878) and *Indian Arms Act* (1878).

(b) The main associations that were the precursors of the Indian National Congress are East India Association (1866), Indian Association (1876) and Indian National Conference (1883).

(c) Two leaders who led the Home Rule Movement in India were Bal Gangadhar Tilak and Annie Besant.

(d) The Sultan was deprived of real authority over his territories and this angered the Muslims in India. The Muslim population in India started a powerful agitation known as the Khilafat Movement, under the leadership of the Ali Brothers (Mohammad Ali and Shaukat Ali), Maulana Azad, Hakim Ajmal Khan and Hasrat Mohani.

(e) **The Rowlatt Act implied :**

1. Arrest and deportation of any person without warrant.
 2. Trial of all political cases by tribunals to be set up for the purpose.
 3. Possession of seditious pamphlets was declared to be a punishable offence.
- The Act came like a sudden blow to the Indians who were expecting self-governance.

(f) **The main objectives of the Indian National Army (INA) were :**

1. To establish an armed revolution and to fight the British army with modern arms.
2. To organise a provisional government of free India.

3. To prepare the Indians inside and outside India for "an armed struggle". Subhash said, "Since the enemy fights with the sword, we too should fight with the sword." Only then we can win the race and get the reward of freedom.

(g) The government did not reply to Gandhiji's eleven-point ultimatum. He selected to attack the salt laws because the salt tax affected all sections of society, especially the poor. By breaking the salt laws it marked the beginning of the Civil Disobedience Movement.

(h) Appeasement refers to accepting the hostile demands of an aggressive nation to gain peace. Britain and France followed the policy of appeasement towards dictatorial countries like Germany and Italy because they felt that the dictators had a real cause of grievance due to the humiliating terms of the Treaty of Versailles and if their grievances were removed, they would not disturb world's peace. Further, they wanted to check the rising tide of Communism and Russian Bolshevism.

(i) **Japan invaded China due to the following reasons :**

1. Japan's policy of expansion. (Policy of Imperialism)
2. Japan was determined to dominate the Far East.
3. Japan's ambitions for more conquests and for more wealth increased after the First World War, Japan was not satisfied with only Manchuria.

(j) **Functions of UNESCO in the field of Education :**

1. Removal of illiteracy by encouraging adult education, distance education and the open school system.
2. Provision of grants and fellowships to teachers and scholars, organisation of library.
3. Financial assistance for the education of disabled children.
4. Organisation of book fairs and festivals at international and national levels.

**PART-II
SECTION-A**

Answer 3.

(a) **Three ways by which the Legislature exercises control over the Executive are :**

1. **Interpellation :** The Question Hour, Calling Attention Notices and Half an Hour discussions are some of the devices to seek information

from the government about its policies and performance. Of these, the most important is the Question Hour. The first hour of a sitting in both Houses is allotted for asking and answering of questions. The questions are asked to obtain information on a matter of public importance or to highlight a grievance.

2. Vote of No-Confidence : If a Government acts against the Constitutional provisions, it can be voted out of office by passing a vote of no-confidence.

3. Adjournment Motion : Motion for adjournment is aimed at censuring the acts of omission and commission of the ministers. The following are some of the occasions on which adjournment motions were allowed in the past: (a) death of several persons due to the consumption of unlicensed liquor; (b) killing of a senior IPS Officer in a place of worship, etc.

(b) Three special powers of the Rajya Sabha that are usually not enjoyed by the other House are :

1. The Rajya Sabha has some exclusive powers. Though the Parliament cannot make laws on a subject in the State List in normal times, the Constitution states that under Article 249 the Rajya Sabha, may by a resolution adopted by two-third majority, empower the Parliament to make laws with respect to a matter in the State List. The Lok Sabha has no authority to assert itself in such matters.

2. The other special power enjoyed by the Rajya Sabha is that it may declare that the creation of new All India Services be made in the national interest. Thereupon, Parliament may create new services.

3. If the Lok Sabha is dissolved before or after the declaration of a national emergency, the Rajya Sabha becomes the sole *de facto* and *de jure* Parliament, i.e., it takes over the functions of the Parliament. It cannot be dissolved. This is a limitation on the Lok Sabha.

(c) 1. Judicial powers of the Indian Parliament :

(i) Impeachment of the President : The Parliament performs some judicial functions. It has the right to remove the President from office through a procedure known as 'impeachment'. In case of violation of the Constitution or grave misconduct, either House may frame charges against the President. If a resolution to this effect is passed by a two-third majority of total membership of the House, by the majority of

members present and voting and the other House too finds the President guilty; the President may be impeached and removed from office.

(ii) Removal of Judges : The Parliament can remove the Judges of the Supreme Court and the High Courts, the Chief Election Commissioner and the Comptroller and Auditor General of India, if they are found guilty of violating provisions of the Constitution.

2. Electoral powers of the Indian Parliament : The Indian Parliament has to perform certain electoral duties as well, such as :

(i) The Parliament of India along with the State Legislatures elects the President of India.

(ii) The Vice-President of India is elected by both the Houses of the Parliament.

(iii) The Lok Sabha elects its own Speaker from amongst its own members while the Rajya Sabha elects its Deputy Chairperson.

Answer 4.

(a) 1. The position of the Prime Minister : While the President is the nominal head of the State, with the backing of a majority in the Lok Sabha, the Prime Minister is the real head of the nation. But in a parliamentary democracy, his deeds are closely judged not only by the opposition but also by the members of his own party. If he tries to assume dictatorial tendencies, he cannot escape the loss of confidence of the Parliament during his tenure as well as that of the electorate in the following general elections. Thus, he is the head of the Government and is answerable to the people of the country.

2. Prime Minister's two powers in relation to the President :

(i) All authority vested in the President is exercised by the Prime Minister. He is the principal advisor of the President. Thus, the President is the nominal head and the Prime Minister is the real executive of the Indian Union.

(ii) It is on the advice of the Prime Minister that the President summons and prorogues the Parliament and dissolves the Lok Sabha.

(b) Three categories of Ministers in order of their rank and status :

1. Cabinet ministers : They are the most important and senior members of the Council of Ministers. They hold important portfolios, like Home, Defence, Finance, External Affairs, Railways, etc. A Cabinet Minister is in charge of a ministry and sometimes of more than one ministry. Only Cabinet Ministers have a right to

attend meetings of the Cabinet. They together determine the policies and programmes of the Government.

2. Ministers of state : They are the second category of ministers. They may or may not hold an independent charge of any portfolio. The Prime Minister may or may not consult them. They do not participate in the Cabinet meetings. But they may be invited to attend meetings when matters concerning their departments are being considered.

3. Deputy ministers : They are the third category of ministers who assist the Cabinet Ministers and the Council of Ministers. They are junior ministers and are placed under senior ministers whom they have to assist. They take no part in Cabinet deliberations.

(c) Four Legislative powers of the Cabinet :

1. Introduction of bills : The Cabinet and the departments of administration take initiative in legislation. In fact, the Cabinet initiates almost 95 per cent of the bills. The legislative proposals that the Cabinet formulates are called Official Bills.

It is the Cabinet who pilots the bill through various processes of legislation from introduction to the final passage of the bill. The Parliament only discusses, scrutinises and by putting its seal of approval, legitimises the legislative proposals formulated by the Cabinet.

2. Source of information : The ministers along with the secretaries of the concerned departments answer questions which are put to them by the members of the Lok Sabha and thus provide information to the public through their representatives.

3. Amendment to the Constitution : The Cabinet is instrumental in planning and moving the Amendment to the Constitution.

4. Summoning the Houses of Parliament : Although, the Houses are summoned by the President, initiative in this matter is taken by the Ministry of Parliamentary Affairs.

Answer 5.

(a) Appellate Jurisdiction of High Court : Appellate jurisdiction of High Court means that the High Court has the power to accept appeals against the decisions of District Courts, in civil as well as criminal matters :

Civil Cases : Only those civil cases which are decided by the District Courts under the jurisdiction of the High Court concerned can be

brought to the High Court by an appeal. Appeals can be brought to the High Court :

1. in matters concerning land revenue, and
2. in cases where a blatant injustice has been committed by any Tribunal. In such cases, the High Court may quash the order of the Tribunals.

Criminal Cases : In criminal cases, appellate jurisdiction consists of appeals :

1. Against the judgement of a Sessions Judge or an Additional Sessions Judge, where the sentence of imprisonment exceeds seven years.
2. Against the judgement of an Assistant Sessions Judge, the Chief Metropolitan Magistrate or other Judicial Magistrates, where the sentence of imprisonment exceeds four years.
3. Against the State, when the order of acquittal is passed by a Sessions Judge.

(b) Refer to ICSE Paper 2019, Answer 5 (b).

(c) Judicial Review : Like the Supreme Court, the High Court has the power of Judicial Review. If any law, executive order or any ordinance passed by the State Legislature or any other authority infringes the Fundamental Rights or contravenes any provision of the Constitution, the High Court can declare it 'null and void'. The High Court may withdraw a constitutional case from a Subordinate Court and deal with it or send it back with its directions.

The 42nd Amendment Act, 1976, introduced provisions, where the power of the High Court to judge the constitutionality of a State law was withdrawn during the emergency. But with the repeal of certain parts of the 42nd Amendment, the High Courts regained their powers of considering the Constitutional validity of any State law or executive order or ordinance.

SECTION-B

Answer 6.

(a) The influence of western education : The introduction of western education by the British in India provided opportunities for assimilation of modern western ideas of democracy and nationalism. This in turn gave a new direction to Indian political thinking and to national awakening. The English system of education opened, to the newly educated Indians the floodgates of liberal European thought. Through the study of European history, political thought and economic ideas; educated Indians had an access to the ideals of liberty, nationality, equality, rule of law and self-government.

The spread of English language in all parts of India gave the educated Indians a common language, in which they could communicate with one another. In the absence of such a common language it would have been very difficult for the Indians to speak different regional languages to come on a common platform and to organise a movement of an all India character.

(b) Three contributions of Raja Rammohan Roy :

1. In 1828, he founded the *Brahmo Sabha*, which was later renamed, *Brahmo Samaj*. The Brahmo Samaj believed in *Monotheism* or worship of one God. It condemned idol worship and laid emphasis on prayer, meditation, charity, morality and strengthening the bonds of unity between men of all religions and creeds.
2. He was against the rigidity of the caste system. He started a campaign for the abolition of Sati and Purdah system, condemned polygamy, discouraged child marriages and advocated the right of widows to remarry.
3. It was because of the efforts made by Raja Rammohan Roy that William Bentinck, the Governor General of India, passed a law in 1821 making the practice of Sati illegal and punishable by law. He also protested against restrictions on the freedom of press.

Answer 7.

- (a) The Split in the Congress in 1907 :** The Assertive Nationalists wanted to extend Swadeshi and boycott to the rest of India. The Early Nationalists however wanted to confine it to Bengal only. They also were opposed to openly supporting boycott. There were differences regarding the election of the President of Indian National Congress too. The Surat Session (23rd Session) of the Congress was held in 1907 under the Presidentship of Rash Behari Ghosh. The Assertive Nationalists proposed the name of Lala Lajpat Rai as the President of the Surat Session. The Early Nationalists proposed the name of Rash Behari Ghosh. When the session at Surat began in December 1907, there was utter confusion. This led to the split in the Congress and the Assertive Nationalist leaders were expelled. For nine years, they remained out of the Congress.

The split in the Congress was unfortunate because it gave an opportunity to the British to exploit the situation to their advantage. They adopted a policy of 'concession and repression' – concession for the Early Nationalists as well as the Muslims and repression to the Assertive Nationalists.

The Surat split also weakened the national movement. The Early Nationalists, however, were largely able to capture the Congress organisation and in the Allahabad convention, held in April 1908, the split was formalised.

(b) (i) Lal-Bal-Pal trio.

(ii) Assertive Nationalists.

(iii) Two popular beliefs were :

1. These 'angry young men' stood for complete Swaraj to be achieved by more self-reliant methods. They also wanted to have a mass-base for their movement.
2. They had a different outlook that advocated active resistance to the British imperialism. They condemned the British rule in India and held it responsible for the country's downfall. They called upon the people of India to make sacrifices for the sake of their country.

(c) Four methods advocated by the Assertive Nationalists for the achievement of their aims were :

1. **Swadeshi :** It means producing necessary items in one's own country and using them for one's use without being dependent on imported goods. This idea was popularized by occasional bonfires of foreign cloth, salt and sugar.
2. **Boycott :** Swadeshi and boycott are the two sides of the same coin. Tilak said, "When you accept Swadeshi, you must boycott foreign goods". Economic boycott of British goods and use of Swadeshi was designed to encourage Indian industries and provide the people with more opportunities for employment.
3. **National education :** A National scheme of education was planned which was to replace Government controlled universities and colleges. The Assertive Nationalists tried to enlist the students in their service. When the British government threatened to take disciplinary action against the students, the national leaders advocated national universities that were free from government control. A large number of national schools were established in East Bengal, and Bengal National College was set up at Kolkata and Pachaiyappa National College at Chennai.
4. **Passive resistance :** The Assertive leaders believed in adopting the policy of non-violent resistance and vigorous political action to achieve their aims. They believed that political rights could not be won by an organisation which could not "distinguish between begging rights and claiming them". They, therefore, asked the people to refuse

to cooperate with the government and to boycott government service, courts, schools and colleges.

Answer 8.

- (a) **Provisions of the Gandhi-Irwin Pact as a result of the Civil Disobedience Movement :** Since the satyagraha could not be suppressed, the Government, through Tej Bahadur Sapru and Jayakar, started negotiations with Gandhiji in jail. This resulted in the signing of a pact by Gandhiji and Lord Irwin, the Viceroy, in March 1931. This is known as the *Gandhi-Irwin Pact*. The government agreed to :

1. Allow people living near seashore to manufacture salt.
2. Release all political prisoners, except those guilty of violence.
3. Permit peaceful picketing of liquor and foreign cloth shops.
4. Restore the confiscated properties of the Congressmen.

The Congress, in its turn, consented to the following :

1. To suspend the Civil Disobedience Movement.
2. To participate in the second session of the Round Table Conference.
3. Not to press for investigation into police assesses.

- (b) **Response to the Cabinet Mission Plan :**

1. **The Congress :** The Congress accepted the proposals with reservations. It accepted only that part of the scheme which dealt with the Constitution making.

It considered the Constituent Assembly as a sovereign body for drafting the Constitution. The Congress wanted the grouping of the Provinces as optional and not compulsory. This was important in view of the fact that Assam in the proposed Group C had the Congress as the government at that time.

The Congress, however, rejected the Viceroy's offer to form an Interim Government because of its limited status and powers, and also because the principle of parity with Muslim League was not acceptable to it. It was also opposed to the League's claim that it alone had the right to nominate all the Muslim members to the Executive Council.

2. **The Muslim League :** The League criticised the proposals because the demand for Pakistan had not been accepted in clear-cut terms at first. Later, the League accepted the Cabinet Mission

Plan in its entirety on June 6, 1946 because it felt that the grouping of Muslim majority provinces, in a way, meant the formation of Pakistan. The League asked Wavell, the Viceroy, to constitute an Interim Government.

- (c) Refer to ICSE Paper 2019, Answer 8 (c).

Answer 9.

- (a) **Immediate cause :** Archduke Francis Ferdinand, the heir to the throne of Austria-Hungary, was assassinated at Sarajevo, capital of Bosnia on June 28, 1914. The assassination was organised by a secret society called 'Black Hand' or 'Union of Death' formed by extremist Serbian nationalists whose aim was to unite all Serbians into a single Serbian State. Austria declared an ultimatum on Serbia on July 23 making eleven demands. Serbia accepted most of the demands except those that would have led to the loss of her sovereignty.

Austria declared war on Serbia on July 28, 1914. This was the beginning of the First World War.

- (b) **Consequences of the Second World War with reference to Cold War :** The United States and Russia emerged as great powers in the world. During the Second World War, the USA and the Soviet Union fought together in cooperation with each other. Though both the countries did not engage in actual fight against each other, there was a state of extreme political tension between the two. This state of tension between countries, in which each side adopted policies designed to strengthen itself and weaken the other without any armed conflict, is known as the 'Cold War'.

Thus, the USA and the USSR continued to maintain diplomatic relations and did not resort to overt clashes, but treated each other with hostility. It also led to the formation of various military alliances such as NATO or North Atlantic Treaty Organisation under US leadership and the Warsaw Pact signed by the representatives of Russia and other Communist countries. This led to the division of the world into two power blocs. One bloc was led by the USA and the other by the erstwhile USSR.

1. **The Democratic and Capitalist Bloc :** The bloc led by the USA, called the *Western bloc* or the *American bloc*, believed in liberal democracy based on Capitalism. This bloc comprised Britain, France, Belgium, Italy, Canada, Australia, the Netherlands, Greece, Pakistan, Turkey, etc.

2. **The Communist Bloc :** The bloc led by the USSR, called the *Eastern bloc* or the *Soviet bloc* believed in Communism based on Marxist theory.

The Soviet bloc countries considered the western style democracy as a farce, meant only for the rich and upper middle class.

(c) Four terms of the Treaty of Versailles which affected Germany after World War I :

1. The treaty declared Germany guilty of aggression. Germany was required to pay for the loss and damages suffered by the Allies during the war. The amount of reparations was fixed at 33 billion dollars. Germany had to cede her merchant ships to the Allies as compensation and had to supply huge quantities of coal to France, Italy and Belgium for ten years.
2. The area of the Rhine Valley was to be demilitarised and the German territory west of Rhine was to be occupied by the Allied troops for 15 years.
3. Germany lost Alsace-Lorraine to France, Eupen-et-Malmedy to Belgium, and Schleswig to Denmark. Danzig became a free port in the Polish territory.
4. Germany ceded parts of her pre-war territory to Denmark, Belgium, Poland, Czechoslovakia and France. The coal mines in the German area called Saar were ceded to France for 15 years and the area was to be governed by the League of Nations.

Answer 10.

(a) Refer to ICSE Paper 2020, Answer 9 (a).

(b) Three functions of the Security Council are :

1. To maintain international peace and security in accordance with the principles and purposes of the United Nations.
2. To investigate any dispute or situation which might lead to international friction and to take military action against an aggressor.

3. To recommend methods of adjusting such disputes or the terms of settlement and to formulate plans for the establishment of a system to regulate armaments.

(c) Four factors that led to the formation of the Non-Aligned Movement were :

1. **Global tension caused by Cold War :** Most of the newly independent countries of Asia and Africa realised that the division of the world into two power blocs was not in their large interest; and this might endanger world peace. These nations felt that by maintaining distance from both the superpowers they would put off the danger of war or a nuclear holocaust.

2. **Struggle against imperialism and neo-colonisation :** The newly independent nations opted for non-alignment because of some emotional and psychological constraints. They wanted to enjoy their newly acquired freedom and the power that had come with it without any pressure from other bigger nations.

3. **Right of independent judgement :** The newly independent nations were able to keep their own identity by not aligning with any of the power blocs. They wanted to solve their problems themselves without any outside interference or influence.

4. **Use of moderation in relations to all big powers :** The newly independent nations wanted to promote goodwill and cooperation among the nations of Asia and Africa, and to explore and advance their mutual interests by establishing friendly relations with all the nations.

GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

- (a) What is meant by Residuary Powers of the Parliament? [1]
- (b) What is the normal term of office of the Lok Sabha? [1]
- (c) State any one subject wherein the Lok Sabha and the Rajya Sabha enjoy co-equal powers in legislation of laws. [1]
- (d) Who presides over the meeting of the Rajya Sabha in the absence of the Vice-President of India? [1]
- (e) By whom and on whose advice are the Council of Ministers appointed? [1]
- (f) Name the official procedure by which the President can be removed. [1]
- (g) Mention any one important occasion when the President addresses a Joint Session of Parliament. [1]
- (h) Name the highest Civil Court in a District. [1]
- (i) What is meant by the term 'Judicial Review' of the High Court? [1]
- (j) What is meant by 'Lok Adalat'? [1]

Question 2.

- (a) What impact did the uprising of 1857 have on the Mughal Rule? [2]
- (b) Name the Presidents who presided over the first two sessions of the Indian National Congress. [2]
- (c) State two reasons given by Lord Curzon to justify the Partition of Bengal. [2]
- (d) Name the famous Pact that demonstrated the unity between the Congress and the Muslim League. When was it signed? [2]
- (e) Why was the Congress session held at Lahore in 1929 significant to the National Movement? [2]
- (f) Mention any two contributions of the INA to the National Movement. [2]
- (g) Why was Mountbatten's Plan finally accepted by the Congress? [2]
- (h) What made Japan surrender to the Allies in August 1945? [2]
- (i) State the full forms of the following agencies of the United Nations : [2]
UNICEF and UNESCO.
- (j) Give any two examples of Human Rights violations.** [2]

** Answer is not given due to change in the present syllabus.

PART-II (50 Marks)

SECTION-A

(Attempt any **two** questions from this Section)

Question 3.

With reference to the Union Legislature, answer the following questions :

- (a) How is the Speaker of the Lok Sabha elected? State two Disciplinary Functions of the Speaker. [3]
- (b) Explain two conditions under which a member of Parliament can be disqualified under the Anti-Defection Law. [3]
- (c) Give reasons to justify why the Lok Sabha is considered to be more powerful than the Rajya Sabha. [4]

Question 4.

The President of India is the Constitutional Head of the Indian Republic. In this context, answer the following questions :

- (a) How is the President elected? [3]
- (b) Mention three types of Emergencies that the President is empowered to proclaim. [3]
- (c) Explain briefly any four 'Executive Powers' of the President. [4]

Question 5.

The Supreme Court has an extensive jurisdiction. In the light of this statement, answer the following questions :

- (a) What are the qualifications of the Judges of the Supreme Court? [3]
- (b) (i) Explain the composition of the Supreme Court. [3]
(ii) How are the Judges of the Supreme Court appointed?
- (c) Explain the cases in which the Supreme Court enjoys Original Jurisdiction. [4]

SECTION-B

(Attempt any **three** questions from this Section)

Question 6.

Explain the causes of the Great Revolt of 1857, with reference to the following :

- (a) Any three Political Causes. [3]
- (b) Any three Military Causes. [3]
- (c) Any four Economic Causes. [4]

Question 7.

Through various National Movements, Gandhiji mobilised public support to win freedom for India. In this context, state the following :

- (a) Any three causes for Gandhi to launch the Non-Cooperation Movement. [3]
- (b) The name given to the uprising of 1942. Two reasons for launching this mass uprising. [3]
- (c) The impact of the Non-Cooperation Movement in India's freedom struggle. [4]

Question 8.

The Partition of Bengal and the Formation of the Muslim League were two important events that had its impact on the National Struggle for Independence. In this context, explain the following :

- (a) Impact of Swadeshi and Boycott movements as part of the Anti-Partition Movement. [3]
- (b) Any three factors leading to the formation of the Muslim League. [3]
- (c) Objectives of the Muslim League. [4]

Question 9.

- (a) Identify the leader in the picture. Give two examples to state that the leader followed an expansionist policy. [3]
- (b) State three factors that led to the rise of Fascism. [3]
- (c) State four similarities between the ideologies of Nazism and Fascism. [4]

Question 10.

With reference to the United Nations and its related agencies, answer the following questions :

- (a) Explain any three functions of the WHO. [3]
- (b) State the composition of the International Court of Justice. [3]
- (c) State any four functions of the General Assembly. [4]

ANSWERS**PART-I****Answer 1.**

- (a) The Parliament possesses residuary powers. It means that it can make laws with respect to all those matters which are not mentioned in any of the three Lists - The Union List, the State List and the Concurrent List.
- (b) The normal term of office of the Lok Sabha is five years.
- (c) The Constitution puts Rajya Sabha on an equal footing with Lok Sabha in matters such as :
 1. The election of the President,
 2. Impeachment of the President,
 3. Removal of the Judges,
 4. Proclamation of Emergency,
 5. Promulgation of Ordinances
 6. Constitutional Amendments and Ordinary Bills.
- (d) Deputy Chairperson presides over the meeting of the Rajya Sabha in the absence of the Vice-President of India. In the absence of the Chairperson, he performs all functions and duties of the Chairperson.
- (e) Council of Ministers are appointed by the President on the advice of the Prime Minister.
- (f) The President may be removed for the violation of the Constitution, from the office by the process of impeachment.

- (g) The President addresses a Joint Session of Parliament at the commencement of the first session after each General Election.
- (h) The Court of the District Judge is the principal or the highest Civil Court of the district.
- (i) If any law, executive order or any ordinance passed by the State Legislature or any other authority infringes the Fundamental Rights or contravenes any provision of the Constitution, the High Court can declare it 'null and void'.
- (j) Lok Adalat means 'People's Court'. On the recommendation of Justice P.N. Bhagwati, Lok Adalats were set up by Legal Services Authorities' Act, 1987 as a legal forum to provide legal aid and quick justice to those who are not in a position to engage lawyers or bear the expenses of legal proceedings.

Answer 2.

- (a) After the 1857 rebellion, Bahadur Shah Zafar was deported to Rangoon and the Mughal dynasty came to an end along with the end of their titles.
- (b) W.C. Bonnerjee presided over the first session of INC at Bombay (Mumbai) in 1885 and Dadabhai Naoroji presided over the second session of INC at Calcutta (Kolkata) in 1886.
- (c) **Two reasons given by Lord Curzon to justify the Partition of Bengal are :**
 1. The province of Bengal was too big to be efficiently administered by a single provincial

government. It was a mere readjustment of administrative boundaries to protect pockets of minorities both in West Bengal as well as East Bengal.

2. To fetch more revenue through trade outlets.

- (d) The pact that demonstrated the unity between the Congress and the Muslim League is known as the Lucknow Pact. It was signed in 1916.
- (e) Jawaharlal Nehru was appointed as the President of the Congress at the historic Lahore session of 1929. It passed a resolution declaring *Poorna Swaraj* (complete independence) to be objective of the Congress and took steps to launch the Civil Disobedience.

On the midnight of December 31, 1929, Jawaharlal Nehru led a procession to the banks of the river Ravi at Lahore and hoisted the tricolor flag. He proclaimed that it was a crime against man and God to surrender any longer to British rule.

That's why the Congress session that was held at Lahore in 1929 became significant to the National Movement.

- (f) **Two contributions of the INA to the National Movement were :**

1. The INA along with Japanese army overran many territories in South-East Asia. In May 1944, INA captured Mowdok, an outpost situated south-east of Chittagong. In 1944, they advanced up to the frontier of India. The INA gave a tough fight to the British forces in the Assam hills and succeeded in capturing Ukhrul and Kohima. They raised the Tricolor Flag for the first time on the liberated Indian soil on March 19, 1944.

2. The Indian Naval ratings in Mumbai rose up in revolt in February, 1946. The heroic deeds and sacrifices of the soldiers of INA led to political consciousness among the Indian forces. The British now realised that they could not rely on the Indian forces to continue their rule in India.

- (g) **Mountbatten's Plan was finally accepted by the Congress because :**

1. The large-scale communal riots that engulfed the whole country convinced all that the only solution to the communal problem lay in the partition of India.

The leaders felt that further delay in the transfer of power could find India in the midst of civil war.

2. A smaller India would be more viable with a strong central authority than with a weak centre.

- (h) After the defeat of Germany, the Allied Powers turned their attention towards Japan. In South-East Asia, Japan had won victories over a

number of countries and had occupied Hong Kong, Philippines, Malaya, Singapore, Myanmar, parts of New Guinea and Indonesia. The British forces liberated Myanmar, Malaya, Philippines and Singapore. In the Potsdam Conference held on July 26, 1945, the Allied Powers asked Japan to surrender, but Japan turned a deaf ear. Consequently, America dropped the first atomic bombs on Hiroshima and Nagasaki on August 6, 1945 and August 9, 1945 respectively. Japan surrendered on September 2, 1945.

- (i) **Full forms of the following agencies of the United Nations are :**

1. **UNICEF** : United Nations International Children's Emergency Fund.

2. **UNESCO** : United Nations Educational, Scientific and Cultural Organization.

PART-II SECTION-A

Answer 3.

- (a) The Speaker of the Lok Sabha is elected from among its own members soon after the newly elected House meets for the first time. When the House is dissolved, the Speaker does not vacate his office, until a new Speaker is elected by the new Lok Sabha in its first meeting. The Speaker is elected for a term of five years.

Two Disciplinary functions of the Speaker :

1. The Speaker maintains order in the House. When members become unruly, he may order them to withdraw. He may suspend a member if he/she disregards the authority of the Chair. In case of grave disorder, he can adjourn the House.
2. The Speaker decides whether there is a case for a matter relating to a breach of privilege or contempt of the House.

- (b) **Two conditions under which a Member of Parliament can be disqualified under the Anti-Defection Law are :**

1. An elected Member of Parliament or a State Legislature, who has been elected as a candidate set up by a political party, would be disqualified on the ground of defection, if he voluntarily relinquishes his membership of such political party or votes or abstains from voting in the House contrary to any direction of such party.
2. A nominated Member of Parliament or a State Legislature who is a member of a political party at the time he takes his seat would be disqualified on the ground of defection if he voluntarily gives up his membership of the party or votes or abstains from voting in the House contrary to the directions of the party.

(c) The special powers which make the Lok Sabha more powerful than the Rajya Sabha are :

1. Motions of No-Confidence against the government can only be introduced and passed in the Lok Sabha. If passed by a majority vote, the Prime Minister and the Council of Ministers resign collectively. The Rajya Sabha has no power over such a motion, and hence no real power over the executive.
2. Money bills can only be introduced in the Lok Sabha and upon being passed, are sent to the Rajya Sabha, where it can be deliberated on for up to 14 days.
3. In case of a deadlock between the two Houses over a non-financial (ordinary) bill, the will of the Lok Sabha normally prevails, as its strength is more than that of the Rajya Sabha.
4. Lok Sabha has a greater say in the election of the President and the Vice-President of India, impeachment of the President, judges of the High Court and Supreme Court because of its numerical strength.

Answer 4.

(a) Refer to ICSE Paper 2020, Answer 4 (a).

(b) Three types of emergencies that the President is empowered to proclaim are :

1. **National or General Emergency :** If the President is satisfied that a grave emergency exists whereby, the security of India or any part of its territory is threatened, either by war or by external aggression or armed rebellion, he may proclaim an Emergency. The President cannot issue such a proclamation unless he has the approval in writing of the Union Cabinet.

2. **Breakdown of Constitutional Machinery in the State :** If the President, on receipt of a report from the Governor or otherwise, is satisfied that the governance of a state cannot be carried on in accordance with the provisions of the Constitution; he may declare an Emergency in the state. This is called President's Rule because the President may assume to himself all or any of the functions of the government of the state.

3. **Financial Emergency :** If the President is satisfied that a situation has arisen whereby the financial stability or credit of the nation is threatened, he can declare a Financial Emergency. Such a proclamation has to be laid before both Houses of Parliament and is valid for two months unless it is approved by resolutions of both Houses of Parliament.

(c) Refer to ICSE Paper 2020, Answer 4 (c).

Answer 5.

(a) **Qualifications of the Judge of the Supreme Court :**

A Judge of the Supreme Court must be citizen of India, and

1. Must have been for at least five years a Judge of a High Court or of two or more such courts in succession; or
2. Has been for at least ten years an advocate of a High Court or of two or more such courts in succession; or
3. Must be in the opinion of the President, a distinguished jurist.

(b) (i) **Composition of the Supreme Court :** The Supreme Court of India consists of a Chief Justice of India and not more than thirty other judges, until the Parliament by law prescribes a large number of judges.

(ii) **Appointments of Judges of the Supreme Court :** Every judge of the Supreme Court is appointed by the President of India in consultation with the judges of the Supreme Court and of High Courts, besides the Cabinet. In case of appointment of a judge other than that of the Chief Justice, the Chief Justice of India shall be consulted. Consultation would generally mean concurrence. In case of the Chief Justice, usually the senior most judge of the Supreme Court is appointed.

(c) Refer to ICSE Paper 2020, Answer 5 (a).

SECTION-B

Answer 6.

- (a) Refer to ICSE Paper 2020, Answer 6 (c).
- (b) Refer to ICSE Paper 2020, Answer 6 (b).
- (c) Refer to ICSE Paper 2020, Answer 6 (a).

Answer 7.

(a) **Three causes for Gandhi to launch the Non-Cooperation Movement :**

1. **Khilafat Movement:** The Muslim population in India started a powerful agitation known as the *Khilafat Movement*, under the leadership of the Ali Brothers - Mohammad Ali and Shaukat Ali because the Sultan Of Turkey felt that any weakening of the Caliph's position would adversely affect the position of the Muslims. In the First World War, the British fought against Turkey. Gandhiji saw the Khilafat Movement as an opportunity for uniting the Hindus and the Muslims. He was elected as the President of the All India Khilafat Conference in November 1919. He advised the Khilafat Committee to adopt a policy of non-cooperation with the government.

2. Rowlatt Act : On receiving a report from the Sedition Committee headed by Justice Rowlatt, two bills were introduced in the Central Legislature in February, 1919. The purpose of the bills was to curb the growing upsurge in the country. In spite of opposition from the Indians, the Rowlatt Act was passed in March, 1919. This Act authorised the Government to imprison any person without trial and convict him in a court. The Act came like a sudden blow to the Indians who were expecting self-governance. Gandhiji appealed to the Viceroy to withhold his consent to such measures. However, his appeal was ignored. He started 'Satyagraha' as a challenge to the Government.

3. Jallianwala Bagh Tragedy : A large but peaceful crowd gathered at the Jallianwala Bagh in Amritsar on April 13, 1919, to protest against the arrest of leaders. General Dyer, the Military Commander of Amritsar surrounded the Bagh with his soldiers. After closing the exit gate with his troops, he ordered them to shoot at the crowd. About one thousand innocent demonstrators were killed and many more wounded. After the massacre, the British Government made a half-hearted attempt at constitutional reform. But, it also made it clear that it had no intention of parting with political power or sharing it with Indians.

(b) Refer to ICSE Paper 2020, Answer 7 (b).

(c) Refer to ICSE Paper 2019, Answer 7 (c).

Answer 8.

(a) The Swadeshi Movement failed to destabilise the government. It did not bring about immediate union of the two Bengals – but instilled courage and fearlessness, and also taught people to openly flout the rules and regulations of the government.

Impact of Swadeshi and Boycott Movements as part of the Anti-Partition Movement :

1. Participation of diverse social sections : The Swadeshi Movement drew a large section of society into active participation in freedom movement for the first time. Many zamindars who had been loyal to the British joined the movement. Active participation of women as well as students was a remarkable achievement. Despite the efforts of the British to keep Muslims away from the movement, some Muslim leaders like Abdul Rashid, a barrister; Ghuznavi, a businessman; and Liaquat Hussain, a popular leader joined the movement.

2. Encouragement to indigenous industries : The Swadeshi and Boycott Movements laid emphasis on self-reliance which meant assertion

of self-confidence. It aimed at the promotion of indigenous industries for strengthening the country. In the economic field, self-reliance gave a stimulus to cottage industries and also to large-scale enterprises. Many textile mills, soap and match factories, handloom weaving concerns were opened. This increased demand for swadeshi goods and led to the increase in production of indigenous goods.

3. Reduction in the import of foreign goods : The Boycott Movement was an eye-opener for the Indians as it made them realise that the import of British goods was one of the primary reasons for the economic distress.

(b) **Three Factors leading to the formation of the Muslim League were :**

1. Aligarh Movement : Mohammedan Educational Conference was held at Dacca in December 1906 and it accepted the proposal and form a Central Organisation for Muslims. Muslim League was established on December 30, 1906 under the Presidentship of Nawab Salimullah. The Muslims, holding them responsible for the uprising of 1857. However, after the 1870s, the British government changed its attitude and followed the policy of appeasing the Muslims in order to undermine the national movement. They sowed the seeds of dissension between two communities and encouraged separatist and communal tendencies.

2. British policy of divide and rule : After the First War of Independence, the British became apprehensive of the safety and stability of their empire in India. They saw the unity between the Hindus and the Muslims as a threat. Thus, to check the growth of a united national feeling in India and to encourage communal and separatist tendencies in Indian politics, they decided to follow the policy of 'Divide and Rule'.

3. Relative backwardness of the Muslim community in education, trade and industry : The communal and separatist trend of thinking grew among the Muslims to some extent because of their relative backwardness in education, trade and industry. The upper class Muslims comprising of zamindars and aristocrats, during the first 70 years of the 19th century were anti-British. They were conservative and hostile to modern education. So, Muslim League was created to promote education among Muslims.

(c) **The Objectives of the Muslim League were laid down as follows :**

1. To promote, among the Muslims of India, support for the British government and to remove

any misconceptions regarding the intention of the government in relation to Indian Muslims.

2. To protect and advance the political rights and interests of the Muslims.
3. To present the needs and aspirations of the Muslims to the government.
4. To prevent the feelings of hostility between the Muslims of India and other communities.

Answer 9.

- (a) The leader in the picture is Benito Mussolini. Under Benito Mussolini's leadership, militarism and nationalism grew to a large extent. The foreign policy introduced was both nationalistic and imperialistic. The two examples to state that this leader followed an expansionist policy were :

1. In 1924, the free state of Fiume was partitioned between Italy and Yugoslavia.
2. The agreements with Albania in 1926 and 1927 made Albania an Italian protectorate and in 1939, Mussolini annexed Albania. Also in 1936, Ethiopia became a part of the Italian empire.

- (b) **Three factors that led to the rise of Fascism were :**

1. **Discontentment after the Treaty of Versailles :** Italy joined the Allies in the First World War to gain territories of Turkey and Germany. By the Treaty of Versailles, she could get only Southern Tyrol and Trentino, and the Coastal regions of Dalmatia. Italy could not get any part of the German and Turkish colonial empire.

2. **Economic Crisis :** Italy suffered heavy losses in terms of life and property in the First World War. After the war, many soldiers became unemployed. Trade and Commerce were ruined leading to large-scale unemployment. There was a shortage of food grains.

3. **Failure of the League of Nations :** After the First World War, the League of Nations was established to maintain peace in the world and to prevent wars. But, it proved to be weak and failed to achieve its aims. It failed to check the rise of dictatorships. If it had acted well in time, the ambitious plans of Mussolini and Hitler would not have materialised.

- (c) **Similarities between the ideologies of Nazism and Fascism were :**

1. To hold that the state is supreme and it could suppress the fundamental rights and freedoms of individuals.
2. To believe in aggressive nationalism and imperialism.
3. To regard war as an instrument for furthering national interests.
4. To uphold intensely nationalistic, anti-communist and anti-democratic rule.

Answer 10.

- (a) Refer to ICSE Paper 2020, Answer 9 (b).
- (b) Refer to ICSE Paper 2020, Answer 9 (c).
- (c) Refer to ICSE Paper 2019, Answer 10 (c).

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GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt *all* questions from this Part)

Question 1.

- (a) Name the two Houses of the Union Parliament. [1]
- (b) How many members are nominated by the President to the Lok Sabha ? Which community do they represent ? [1]
- (c) What is the required quorum to hold the meetings of the Lok Sabha ? [1]
- (d) Mention one provision of the Constitution which clearly establishes the supremacy of the Lok Sabha with regard to money bills. [1]
- (e) Who has the power to promulgate an Ordinance at the Centre ? When can it be promulgated ? [1]
- (f) Mention any one discretionary power of the President. [1]
- (g) State any one qualification necessary for the election of the President of India. [1]
- (h) Who is the Chairman of the Rajya Sabha ? [1]
- (i) What happens if a Vote of No-Confidence is passed against a Minister in the Lok Sabha ? [1]
- (j) State one advantage of a Lok Adalat. [1]

Question 2.

- (a) Mention two administrative changes that the British Government brought about regarding the East India Company's rule in India. [2]
- (b) Mention any two contributions of Jyotiba Phule in preparing the ground for the National Movement. [2]
- (c) Who founded the Home Rule Leagues in India ? What was its objective ? [2]
- (d) Who is regarded as the political guru of Mahatma Gandhi ? Give a reason for him being considered as the Mahatma's Guru. [2]
- (e) Mention any two causes for the rise of Assertive Nationalism. [2]
- (f) Why was the Simon Commission rejected by the Congress ? [2]
- (g) Who founded the Forward Bloc ? Mention any one of its objectives. [2]
- (h) What is the meaning of 'Fascism' ? [2]
- (i) Name the two rival blocs formed in Europe before World War I. [2]
- (j) What is meant by the term 'Non-Aligned Movement' ? [2]

PART-II (50 Marks)

SECTION-A

(Attempt any *two* questions from this Section)

Question 3.

The Rajya Sabha is the second chamber of the Indian Parliament and represents the interest of the States. In this context explain the following :

- (a) Its composition. [3]
- (b) Qualifications for membership. [3]
- (c) Term of the House and any two of its legislative powers. [4]

Question 4.

The makers of our Constitution adopted the Parliamentary and the Cabinet form of Government. With reference to this, answer the following questions :

- (a) (i) Who is the Constitutional Head of the Union Government ?
- (ii) What is meant by the Collective and Individual Responsibility of the members of the Cabinet ? [3]
- (b) Explain briefly the position and powers of the Prime Minister in relation to the Cabinet. [3]
- (c) Distinguish between the Cabinet and the Council of Ministers. [4]

Question 5.

With reference to our Judiciary, discuss the following :

- (a) Why is the Judiciary kept independent of the control of the Executive and the Legislature ? [3]
- (b) What do we mean when we refer to the Supreme Court and the High Court as a 'Court of Record' ? [3]
- (c) Name the Writs that the High Courts are empowered to issue. What is meant by the Advisory Jurisdiction of the High Court ? [4]

SECTION-B

(Attempt any *three* questions from this Section)

Question 6.

With reference to the growth of National Consciousness in India, explain each of the following :

- (a) The immediate objectives of the Indian National Congress. [3]
- (b) Two contributions of Dadabhai Naoroji. [3]
- (c) The impact of the Swadeshi and the Boycott Movement. [4]

Question 7.

In 1930 Mahatma Gandhi's demands were rejected by the British, as a result of which he launched the Civil Disobedience Movement. In this context explain the following :



- (a) Name the famous march undertaken by Gandhiji. Where did he begin this march ? State two of its features. [3]
- (b) The Gandhi-Irwin Pact as a consequence of this Movement. [3]
- (c) Significance of the Second Round Table Conference. [4]

Question 8.

With reference to the transfer of power to India, answer the following :

- (a) Explain the Cabinet Mission's proposals regarding the setting up of a Constitution making body. [3]
- (b) Mention any two clauses of the Indian Independence Act 1947. [3]
- (c) Why did the Congress accept the Mountbatten Plan ? [4]

Question 9.

The War that broke out in 1914 was different from the previous wars in many ways. In this context discuss the following points briefly :

- (a) Militant Nationalism as a cause of the War. [3]
- (b) How did the Treaty of Versailles seek to cripple Germany's military strength ? [3]
- (c) What was the territorial rearrangement of Europe as a result of this War ? [4]

Question 10.

The United Nations was established to be an effective peace keeping international organization. In this context explain the following :

- (a) Its objectives and purposes. [3]
- (b) The meaning of Human Rights as incorporated in the Human Charter.** [3]
- (c) Name the agency that the UN set up to deliver relief to children and mothers after World War II. State any three of its functions. [4]

ANSWERS**PART-I****Answer 1.**

- (a) The two Houses of Union Parliament are the Lok Sabha (The House of the People) and the Rajya Sabha (The Council of States).
- (b) Two members of the Anglo-Indian Community may be nominated by the President to the Lok Sabha, in case he feels that this community is not adequately represented.
- (c) The required quorum of the Lok Sabha is one-tenth of the total membership of the House. This means that the House cannot conduct its proceedings and pass bills and resolutions without the presence of at least one-tenth of its total membership.
- (d) In case of money bills, the Rajya Sabha has virtually no powers. It can neither reject a money bill nor amend it by virtue of its own powers. It must, within the stipulated period of 14 days, return the bill to the Lok Sabha, which may thereupon either accept or reject all or any of the recommendations of the Rajya Sabha.

** Answer is not given due to change in the present syllabus.

- (e) The President is empowered to promulgate an ordinance at a time when the Parliament is not in session. It has the same effect as an Act. All ordinances must be put up before both the Houses for their approval.
- (f) 1. The President may withhold assent to a bill or send it back for reconsideration (in case it is not a money bill).
2. If no Party gains majority then President has the freedom to appoint the Prime Minister.
3. If the Prime Minister has lost the confidence of the Lok Sabha and asked for the dissolution of the House, then the President is not bound to act on the PM's advice. (Any one point)
- (g) 1. A citizen of India, 2. Not less than 35 years of age, 3. Qualified for election as a member of Lok Sabha, 4. Not holding any office of profit under the government, 5. Should not be a member of either House of Parliament or State Legislature. (Any one point)
- (h) The Vice-President of the Indian Union acts as the ex-officio Chairman of the Rajya Sabha.

- (i) If a Vote of No-Confidence is passed against a minister in Lok Sabha, the entire ministry has to resign en bloc (The government falls).
- (j) One advantage of Lok Adalat is that it delivers fast and inexpensive justice. Any person can move to the Lok Adalat by an application on a plain paper or using the format available with Legal Service authorities and expect speedy justice.
- (d) Gopal Krishna Gokhale, because he went to South Africa where he helped Gandhiji in his fight against racial discrimination. The credit of persuading Gandhiji to return to India and join Indian public life also goes to him.
- (e) **Two causes for the rise of Assertive Nationalism were :**

1. Famine and plague of 1896 affected crores of people and caused death. The British government provided slow relief.

2. **Economic exploitation :** Prolonged drought and famine increased the misery of the peasants/ Indian traders and manufacturers lost confidence in the British Government/India's gold reserves were transferred to London/India was starved of its own resources.

Answer 2.

- (a) **The two administrative changes that the British government brought about regarding the East India Company's rule in India were :**

1. India would be governed directly by and in the name of Her Majesty, i.e., it transferred the power to govern India from the East India Company to the British Crown.

2. There would be Secretary of State on whom all the powers formerly exercised by the Court of Directors or Board of Control would be vested i.e., the Secretary of State would perform all his duties with the aid of the Indian Council.

- (b) Jyotiba Phule was an urban educated member of low caste. His education and personal experience had made him critical of Hindu religion and customs. **The contributions of Jyotiba Phule in preparing the ground for National Movement are as follows :**

1. In 1854, he established a school for the untouchables.

2. He started a private orphanage for the widows. He wanted to liberate the depressed classes and make them aware of their rights by educating them.

3. He founded the *Satya Shodhak Samaj* in 1873 with the aim of securing social justice for weaker sections of society. He pioneered the widow remarriage movement in Maharashtra and worked for the education of women.

- (c) Bal Gangadhar Tilak founded the Indian Home Rule Leagues in April 1916 and Annie Besant founded the Home Rule League in September 1916.

The main objectives of the Home Rule Movement was to attain self-government within the British Empire by constitutional means. That is to say, the country should have a government by Councils, whose members would be elected by the people. The Council would pass the Country's budget and the ministers should be made responsible to the legislature. The Home Rule League raised the slogan of Swadeshi, National Education and Home Rule for India.

(f) In November 1927, the British government appointed the Indian Statutory Commission, popularly known as the *Simon Commission*, to investigate the need for further constitutional reforms. The Commission was composed of seven British members of Parliament. It had no Indian member. This was seen as a violation of the principle of self-determination and a deliberate insult to the self-respect of the Indians. At its Madras session in 1927, presided over by Dr. Ansari, the National Congress decided to boycott the commission 'at every stage and in every form'.

(g) Subhash Chandra Bose felt the urgent need for an organised left-wing party in the Congress. After resigning from the Presidentship of the Congress in 1939, he laid the foundation of a new party within the Congress to bring the entire left-wing under one banner. This party, known as Forward Bloc, was formed on May 3, 1939.

Forward Bloc's immediate objective was liberation of India with the support of workers, peasants, youths and other organisations.

(h) The word 'Fascism' has been derived from the Italian word '*Fascio*', which means union or league. It also refers to the ancient Roman symbol of power. The *fasces* was a bundle of sticks bound to an axe that symbolised civic unity and the authority of roman officials to punish wrong doers. Thus, '*Fascism meant autocracy or dictatorship where the power of the State is vested in one man only and it is obligatory for all the others to obey his orders.*'

(i) There were two kinds of rival blocs formed in Europe before World War I or in the early 20th century i.e. Triple Alliance and Triple Entente.

(j) The concept of 'non-alignment' emerged during the Cold War. Non-alignment is the international policy of a sovereign state according to which it

does not align itself with any of the power blocs and at the same time actively participates in the world affairs to promote international peace, harmony and cooperation.

PART-II

SECTION-A

Answer 3.

The Rajya Sabha is the second chamber of the Indian Parliament and represents the interest of the states. In this context, explanations of the following points are :

- (a) **Its Composition :** The maximum strength of the Rajya Sabha can be 250 members. The members fall into two categories *i.e.*, nominated and elected.

1. Nominated members : The nominated members are 12 in number. They are nominated by the President from among people having special knowledge or practical experience in matters such as literature, science, art and social service.

2. Elected members : 238 members are elected by the states in the Union. The allocation of seats among the states is not equal, as this would be undemocratic. Seats are allocated to the states and the Union Territories on the basis of their population.

- (b) **Qualifications for membership :** Qualifications for membership of the Rajya Sabha are the same as those for membership of the Lok Sabha except that of the age criteria. The minimum age for contesting election for the Rajya Sabha is 30 years. The qualifications for membership of the Rajya Sabha are given below :

1. He should be an Indian citizen.
2. He should be at least 30 years of age.
3. He should have his name in the electoral rolls in some part of the country.
4. He should not be an insolvent, *i.e.*, he should not be in debt and should have the ability to meet his financial commitments.
5. He should not hold any office of profit under the government.
6. He should not be a proclaimed criminal.
7. He should not be of unsound mind.

- (c) **Term of the House and any two of its Legislative powers :** The Rajya Sabha is a Permanent House. It cannot be dissolved like the Lok Sabha. Each member of the Rajya Sabha is elected for a period of six years. One-third of the total members of the House retire after every two years. Members can be re-elected, if they desire so and if their electors support them.

Legislative powers : 1. The Rajya Sabha has special powers of declaring any subject in the State List as a subject of national interest and empowering the Parliament to pass the legislation on it.

2. All bills, other than the money bills, can originate in any House of the Parliament. No bill can become a law unless agreed upon by both the Houses. If there is disagreement, the President may summon both the Houses of Parliament in a joint meeting. At the joint meeting, issues are decided by a majority of the members of both the Houses present and voting.

Answer 4.

- (a) (i) While the President is the nominal head of state, with the backing of a majority in the Lok Sabha, the Prime Minister is the real or the constitutional head of the Union Government.

(ii) **Collective responsibility :** Under Article 75(3) of the Constitution 'the Council of Ministers shall be collectively responsible to the House of the People.' The principles of collective responsibility implies that :

1. The decisions taken in the meetings of the Cabinet are equally applicable to all the Ministers even though they may differ among themselves on a particular policy.

2. All ministers jointly share the responsibility for the government's policies and performance. The ministers must function as a team in supporting and defending government policies inside as well as outside the Parliament.

(iii) **Individual responsibility :** The ministers are individually responsible to the President, *i.e.*, they hold office during the pleasure of the President and may be dismissed by him, on the advice of the Prime Minister even when they may have the confidence of the legislature.

Each minister is answerable to the Parliament for the department under his control. It is obligatory for him to answer all the questions asked by the MPs, regarding the functioning of his department.

- (b) The Prime Minister is the head of the Cabinet. No provision is made in the Constitution for the appointment of different categories of ministers such as Ministers of the Cabinet rank, Ministers of State and Deputy Ministers. The Prime Minister has the liberty to decide on these matters.

Position and powers of the Prime Minister in relation to the Cabinet are as follows :

1. Power to allocate portfolios and to reshuffle the Council of Ministers : It is the Prime Minister who allocates departments or portfolios to

the Ministers. He can reshuffle his Council of Ministers whenever he pleases.

2. Power to select and dismiss ministers : The Prime Minister choose the Ministers and has the power to dismiss them too. He can ask an erring minister to resign.

3. Power to direct and coordinate policy : The Prime Minister coordinates the working of various departments so that administration is carried on smoothly. In critical matters such as foreign, defense, economic and technological affairs, he coordinates the policy of the government.

4. Resignation of the Prime Minister : The Prime Minister's resignation implies the resignation of the whole Cabinet.

(c) Refer to ICSE Paper 2019, Answer 4 (b).

Answer 5.

(a) India has opted for single integrated judicial setup unlike the double judicial setup in USA. **Judiciary is kept independent of the Executive and Legislature control because of the following reasons :**

1. In a representative democracy, administration of justice assumes special significance in view of the rights of individuals, which need protection against executive or legislative interference. This protection is given by making the judiciary independent of the other two organs of the government.

2. An independent and supreme judiciary is also an essential requirement of federal governance. In a federal setup, there is constitutional division of powers between the executive, legislature and judiciary.

3. An independent and impartial judiciary is an essential requisite for ensuring protection of human rights and democracy.

(b) **Supreme Court and High Court as a 'Court of Record' :** A Court of Record is a court whose judgements are recorded for evidence and testimony. The judgements are in the nature of 'precedents', i.e., the High Courts and the other courts are bound to give a similar decision in a similar case. They are not to be questioned when they are produced before any subordinate court. The Supreme Court shall be a 'Court of Record' and shall have all the powers of such a court including the powers to punish for contempt of itself, according to Article 129 of the Constitution. The Court of record has two implications :

1. Its judgements and orders are preserved as record. These can be produced in any court as precedents.

2. If a person commits a contempt of court, the court has the authority to punish him. No authority can deprive the court of this right.

The High Court is a 'Court of Record' like the Supreme Court because :

1. Its judgements and orders are preserved as a record to be referred to by its courts in future cases. They can be produced as precedents. The law laid down by the High Court is binding on all subordinate courts in the state concerned. But, it does not bind the other High Courts although, it is of great significance and can be produced in support of an argument.

2. The High Court can punish any one who commits contempt of its orders.

(c) All the High Courts are empowered to issue 'writs'. A writ is an order from a judicial authority asking a person to perform some act or to refrain from performing an act. The writs that are issued are *Habeas Corpus*, *Mandamus*, *Prohibition*, *Quo Warranto* and *Certiorari*. These writs are greatly instrumental in the protection of Fundamental Rights of the citizens.

Advisory Jurisdiction of the High Court : The High Courts can advise any government department, legislature or the Governor, if they seek it on constitutional as well as on other matters of law. Their advice is not binding on the agency seeking such advice.

SECTION-B

Answer 6.

(a) **The immediate objectives of the Indian National Congress :** In the Presidential address of the first session of the Indian National Congress held at Mumbai in December, 1885, W.C. Bonnerjee declared the following as the objectives of the Indian National Congress :

1. To promote friendly relations between nationalist political workers from different parts of the country.

2. To develop and consolidate the feelings of national unity irrespective of caste, religion or province.

3. To formulate popular demands and present them before the government.

4. To train and organise public opinion in the country.

The Congress held its sessions every year in December to chalk out programmes to achieve its aims. Changes were made in the above mentioned aims of the Congress from time to time according to the changed circumstances.

(b) Two contributions of Dadabhai Naoroji :

1. Role in the Congress : Dadabhai's role in the Congress was praiseworthy. He took an active part in the foundation of the Indian Nationalist Congress and was elected as its President thrice in 1886, 1893 and 1906. Four resolutions on Self-government, Boycott, Swadeshi and National Education were passed by the Congress under his Presidentship.

The credit for demanding Swaraj from the Congress platform for the first time (1906) goes to him. In his Presidential address, he said that Congress wanted self-government or Swaraj like that of the United Kingdom or the Colonies.

2. Exposed the economic ills in India : As an economic thinker, he came to the conclusion that the root cause for the economic ills of India was the exploitation in India by the British. Dadabhai's views on Indian economy are given in his work entitled '*Poverty and Un-British Rule in India*'. His famous 'Drain Theory' explained how India's wealth was being 'drained' to England through various ways.

Dadabhai passed away in 1917 leaving behind a lesson of selfless service to the nation. C.Y. Chintamani had rightly said, "*The public life of India had been adorned by a galaxy of brilliant intellects and selfless patriots, but there has been in our time none comparable with Dadabhai Naoroji.*"

(c) Refer to ICSE Paper 2016, Answer 8 (a).

Answer 7.

(a) Refer to ICSE Paper 2020, Answer 7 (a).

(b) Refer to ICSE Paper, 2017, Answer 8 (a).

(c) Refer to ICSE Paper 2019, Answer 8 (b).

Answer 8.

(a) Refer to ICSE Paper 2019, Answer 8 (c).

(b) Two Clauses of the Indian Independence Act, 1947 :

1. Two new dominions : India would be partitioned and two independent dominions India and Pakistan would be created from August 15, 1947. The Act provided legislative supremacy of both the dominions. The territories of the two dominions were divided in such terms that Pakistan would comprise Sindh, British Baluchistan, North West Frontier Province, the West Punjab and East Bengal. India was to comprise all the remaining territories included in the British India. The exact boundaries of the dominions would be determined by a Boundary Commission.

2. Provisions of partition : (1) Both Bengal and Punjab would be divided. The Provincial Assemblies of the two parts would meet separately, reprinting the Hindu majority districts and the Muslim majority district and would decide through a majority vote whether they wanted the division of the province or not.

(2) A plebiscite would be held in North West Frontier Province (NWFP) as well as in Sylhet district (Muslim majority area) in East Bengal to determine whether they would like to join Pakistan or India. (Both these provinces joined West and East Pakistan, respectively).

(c) Refer to ICSE Paper 2020, Answer 8 (c).

Answer 9.

(a) An important cause of the war was competitive patriotism or extreme nationalism/William Kaiser went about proclaiming that Germany was going to be the leader of the world/In the Franco-Prussian war, Germany had seized the province of Alsace and parts of Lorraine which were rich in minerals and industrial products. The French wanted to recover their lost provinces/Italians looked discontented/There was unsatisfied national spirit of Balkan states/The political leaders and rulers succeeded in fanning hatred and passion under the cover of nationalism.

(b) **Treaty of Versailles and Germany :** As a result of the discussions at the Paris Conference, on June 28, 1919, *The Treaty of Versailles* was signed. It ended the war. The basis of the treaty's negotiations was the American President Wilson's Fourteen Points. The treaty was designed to prevent Germany from going to war again.

Terms of the Treaty :

1. The treaty declared Germany guilty of aggression.

2. Germany was required to pay for the losses and damages suffered by the Allies during the war. The amount of reparations was fixed at 33 billion dollars. Germany had to cede her merchant ships to the Allies as compensation, and had to supply huge quantities of coal to France, Italy and Belgium for ten years.

3. German colonies in the Pacific and the areas under her control in China were given to Japan. China was aligned with the Allies during the war but her areas under German control were given away to Japan.

4. The German Army was restricted to a force of 1,00,000 soldiers and the Navy was limited to 15,000 men and 36 ships. The Air Force and submarines were banned.

Defeat in the First World War and the conditions imposed by the Treaty of Versailles made the Germans feel humiliated and helpless. Germans looked down upon the Weimar Republic which had signed such a disgraceful treaty. The terms of this treaty were greatly resented by the Germans who eagerly looked for an opportunity to avenge the same. These sentiments were exploited by Hitler. He openly encouraged the Germans to consign the Treaty of Versailles into the waste-paper basket, to rebuild the empire of Germany, and to recapture the lost colonies.

(c) Refer to ICSE Paper 2018, Answer 9 (b).

Answer 10.

The United Nations was established to be an effective peace keeping International Organisation.

(a) **Objectives and purposes of the UN :**

The purposes of the United Nations, defined in Article 1 of the Charter, are as follows :

1. To maintain international peace and security; to take collective measures for the prevention and removal of threats to peace, to suppress acts of aggression or other breaches of peace.
2. To develop friendly relations among nations based on respect for the principle of equal rights and self-determination of people.
3. To achieve international cooperation in solving international economic, social, cultural, or humanitarian problems and encouraging respect for human rights and for fundamental freedoms.
4. To be the centre for harmonising the actions of nations in the attainment of these common ends.

Objectives of UN : Disarm, decolonise and develop are the three new objectives set by the UN.

(c) United Nations International Children's Emergency Fund (UNICEF) is the agency that the UN set up to deliver relief to children and mothers after World War II.

Functions of UNICEF : UNICEF provides services in primary healthcare nutrition, basic education, sanitation and women's development in developing countries.

The main functions of UNICEF are broadly divided into the following categories :

1. UNICEF works for the protection of children in respect of their survival, health, and well-being. This is done in cooperation with individuals, civic groups, governments and the private sector.
2. It provides funds for training the personnel, including health and sanitation workers, teachers and nutritionists. Universal child immunisation against preventable diseases was one of the leading goals of UNICEF.
3. It assists Governments to plan, develop and extend community-based services in the fields of maternal and child health, nutrition, clean water and sanitation.
4. It provides help to children and mothers in emergencies arising from natural calamities, civil strifes and epidemics.
5. UNICEF performs various other functions. As the sole agency for children, it speaks on behalf of children and upholds the convention on the rights of the child and works for its implementation.

● ●

GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt *all* questions from this Part)

Question 1.

- (a) Who administers the oath of office to the Council of Ministers ? [1]
- (b) Why is the Rajya Sabha called a 'Permanent House' ? [1]
- (c) State the minimum number of times the Lok Sabha must meet in a year. [1]
- (d) State the composition of the Electoral College in the election of the President of India. [1]
- (e) What is an 'Ordinance'? When can it be passed ? [1]
- (f) Mention one way by which the authority of the Prime Minister can be checked. [1]
- (g) What is understood by the term 'Individual Responsibility' in a Parliamentary Democracy ? [1]
- (h) What is meant by a 'Single Integrated Judicial System' as provided in the Indian Constitution ? [1]
- (i) What is the 'Appellate Jurisdiction' of the High Court? [1]
- (j) State one point of distinction between the District Judge and the Sessions Judge. [1]

Question 2.

- (a) State any two political causes responsible for the First War of Independence. [2]
- (b) What was the role of the press in promoting nationalistic sentiments amongst the Indians ? [2]
- (c) Mention two important contributions of Lala Lajpat Rai. [2]
- (d) What were the two basic reasons responsible for the Surat Split in 1907 between the Early Nationalists and the Assertive Nationalists ? [2]
- (e) Mention any one provision each of the Gandhi-Irwin Pact signed in 1931. [2]
- (f) State two important objectives of the Indian National Army. [2]
- (g) Name the three members of the Cabinet Mission. [2]
- (h) Mention any two terms of the Treaty of Versailles signed on June 28, 1919. [2]
- (i) State two factors which were responsible for the failure of the League of Nations. [2]
- (j) Mention two functions of the General Assembly. [2]

PART-II (50 Marks)

SECTION-A

(Attempt any *two* questions from this Section)

Question 3.

With reference to the Indian Parliament, explain the following :

- (a) The tenure of the members of the Lok Sabha and the Rajya Sabha. [2]
- (b) The composition of the Lok Sabha and the Rajya Sabha. [4]
- (c) Its powers to make laws on subjects mentioned in the
 - (i) Union List
 - (ii) Concurrent List
 [4]

Question 4.

The Cabinet holds a pivotal position in the working of the Indian Parliamentary Government. In this context discuss the following :

- (a) The formation of the Cabinet. [2]
- (b) Any two administrative powers of the Cabinet. [4]
- (c) Any two legislative powers of the Cabinet. [4]

Question 5.

With reference to the Supreme Court, explain its functions stated below :

- (a) Original Jurisdiction. [3]
- (b) Advisory Function. [3]
- (c) As a guardian of Fundamental Rights. [4]

SECTION-B

(Attempt any *three* questions from this Section)

Question 6.

The establishment of the Indian National Congress led to the development of the National Movement in India. In this context answer the following :

- (a) When was the Indian National Congress established ? Who presided over its first session ? [2]
- (b) What were the four aims of the Congress ? [4]
- (c) Mention four basic beliefs of the Early Nationalists. [4]

Question 7.

In the Nagpur session, 1920, the Congress ratified the resolution to launch the Non-Cooperation Movement under the leadership of Gandhiji. In this context :

- (a) What do you understand by the term Non-Cooperation? [2]
 (b) What were the objectives which the movement sought to achieve? [3]
 (c) Explain the impact of the Non-Cooperation Movement in India's struggle for freedom. [5]
- (b) Why was he sent to India? [2]
 (c) How did he plan to solve the communal problem existing in India? [2]
 (d) Why did the Congress accept the Plan? State three reasons to justify its acceptance. [5]

Question 8.

With reference to the picture given above answer the following :

- (a) Identify the Viceroy in the picture. [1]

Question 9.

With reference to the causes of the Second World War answer the following :

- (a) (i) Explain how the ideologies of Fascism and Nazism led to the Second World War. [3]
 (ii) How did the Japanese invasion of China create conditions for the outbreak of the war? [3]
 (b) Explain the consequences of the war with reference to the formation of the United Nations. [4]

Question 10.

With reference to the Non-Aligned Movement, explain the following :

- (a) 'Non-Alignment'. [2]
 (b) Two factors responsible for its formation. [4]
 (c) Role of Pt. Jawaharlal Nehru. [4]

ANSWERS**PART-I****Answer 1.**

- (a) The President of India administers the Oath of Office to the Council of Ministers.
 (b) The term of the members elected to the Rajya Sabha is six years. However, every second year one-third of the members retire and there are new entrants. The Rajya Sabha cannot be dissolved by the President of India. Thus, the House is never empty and therefore it is called a 'Permanent House'.
 (c) According to the Constitution, the Lok Sabha must meet at least twice a year with not more than six months break between the two sessions.
 (d) The Electoral College, in the election of the President of India, is composed of—
 1. The elected members of both the Houses of the Parliament and
 2. The elected members of the Legislative Assemblies of the States including Union Territories possessing assemblies.
 (e) An 'ordinance' is a temporary law that is enforced when the Parliament is not in session. The power to pass an ordinance is accorded to the President of India and is passed in cases of emergency.
 (f) If the Prime Minister fails to carry out obligations or makes detrimental choices, then the members

of the House can pass a motion of No-Confidence. This deems him 'not fit' to hold the position, anymore. Thus, the authority of the Prime Minister can be checked.

- (g) 'Individual Responsibility' in a Parliamentary Democracy means that each minister is answerable to the Parliament regarding his department. If the particular minister fails to discharge his or her responsibilities, then he or she alone is expected to take the blame and resign.
 (h) In a 'Single Integrated Judicial System' provided in the Indian Constitution, the Supreme Court of India is the apex court of India and administers both the Union and the State laws. Below the Supreme Court are the High Courts in each state or group of states followed by Subordinate Courts.
 (i) In the 'Appellate Jurisdiction', the High Court takes up both civil and criminal cases. It also extends to taking up civil cases tried by District Judges and criminal cases decided by Sessions or Additional Sessions Judges.
 (j) When a Judge sitting in the District Court hears cases on civil matters, he is a District Judge. Whereas, when he or she sits in the Sessions Court to hear a criminal case, he is termed as a Sessions Judge.

Answer 2.**(a) Two important political causes responsible for the First War of Independence were :**

1. The British policy of annexation of kingdoms under the pretext of inefficient administration of the rulers.

E.g. : Awadh was annexed by Lord Dalhousie on the pretext of alleged misrule.

2. The Doctrine of Lapse introduced by Lord Dalhousie that imposed unsentimental law of 'no adoption policy' for zamindars and landowners and the lapse of kingdom into the hands of the British in the absence of natural heir.

(b) The press gained prominence in the later half of the 19th century. As newspapers were published in both English and Vernacular languages, the press was successful in voicing out people's opinions, crusading political movements and creating an impact on the public. Thus, promoting nationalistic sentiments amongst Indians.

(c) 1. Lala Lajpat Rai led the Non-Cooperation Movement in Punjab after which he came to be known as 'Punjab Kesri'.

2. He started a monthly magazine 'Young India', which were very helpful in understanding the true nature and contribution of the freedom fighters of India. He was also a social reformer and started the 'Lok Sewak Mandal' that established new schools for depressed classes.

(d) 1. The Early Nationalists believed in being diplomatic with the British Government to resolve minor issues but the Assertive Nationalists resorted to strikes, agitation and boycotts.

2. In the Surat session of 1907, a difference of opinion regarding the candidature for the President of Congress arose between the Early Nationalists and the Assertive Nationalists.

This was the basic reason behind the Surat Split in 1907.

(e) 1. The Congress declared withdrawal of the Civil Disobedience Movement and Gandhiji agreed to attend the Second Round Table Conference at London.

2. The Government announced release of political prisoners except those guilty of violence in lieu of the withdrawal of Civil Disobedience Movement.

(f) The two main objectives of the Indian National Army were :

1. To organise an armed rebellion and fight the British army with modern arms.

2. To organise a provisional government of free India in order to mobilise all forces effectively.

(g) Lord Pethick Lawrence, Secretary of State for India; Sir Stafford Cripps, President of the Board of Trade; and A. V. Alexander, the first Lord of the Admiralty were the three members of the Cabinet Mission.

(h) 1. Germany was held responsible for effectuating World War and causing great loss and damage. In return, it had to compensate the loss and pay an indemnity of 6,600 million pounds to the victorious nations.

2. In order to redress the destruction caused to the coal mines of France by Germany, France was given complete control over the rich coal mines in the Saar Basin.

(i) 1. The League of Nations failed to prevent the Japanese aggression into Manchuria and the attack on Abyssinia (present Ethiopia) by Italy.

2. The U.S.A. never became its member and the defeated nations were not allowed to become its members. Thus, it failed to become instrumental in bringing world peace.

(j) 1. The General Assembly promotes international peace and security through disarmament.

2. To make recommendations for peaceful settlement of disputes.

PART-II

SECTION-A

Answer 3.

(a) The term of the members of the Lok Sabha is five years unless, it is dissolved. In cases of emergency, the term can be extended by the President for about a year. The tenure of the members of the Rajya Sabha is six years and is not subject to dissolution.

(b) Rajya Sabha : The Rajya Sabha is composed of 238 members representing the States and Union Territories. The President nominates 12 members who have special knowledge or expertise in the fields of Science, Literature, Social Service and Art.

Lok Sabha : The maximum strength of the Lok Sabha is 552, out of which 530 members represent the States, 20 members represent the Union Territories and 2 members are nominated by the President from the Anglo-Indian Community. The members representing the States and Union Territories are directly elected by the people through adult franchise. The strength of the Lok

Sabha is not fixed as members may resign or may be suspended.

- (c) Both the Houses of the Indian Parliament together have got executive powers to make laws on :

(i) Subjects mentioned in the Union List such as Foreign Policy, Currency, Defence, Atomic Energy, Banking, Inter-State trade and commerce etc. There are altogether 97 subjects in the Union List.

(ii) The Concurrent List consists of subjects like education, labour welfare, books and printing press, criminal and civil law, marriage and divorce etc. The Parliament can make laws on the 47 subjects mentioned in the Concurrent List.

Answer 4.

- (a) 1. The Cabinet holds an important pivotal position in the working of the Government. The Cabinet is a body consisting of important senior leaders of the party.

2. They hold important portfolios like Defence, Railways and decide major policies of the Government.

- (b) 1. **Implementation of policies :** When the Cabinet takes a certain decision on any subject it is conveyed to the ministers of state and deputy ministers of the concerned ministry. They will work out the details and pass it to the civil servants for implementation. In this way the business of the Government is managed by the Council of Ministers and the civil servants.

2. **Coordinates the working of various ministers :** The Cabinet coordinates the working of various departments for the smooth implementation of Government policies. Any policy like improving public health services, increase in Government revenue etc., requires involvement of several departments for its formulation and implementation.

- (c) Refer to ICSE Paper 2017, Answer 4 (c).

Answer 5.

- (a) Refer to ICSE Paper 2020, Answer 5 (a).

- (b) The Supreme Court is entitled to advise the President of India on matters of law or facts of public importance. If the President opines that a question of law needs the consultation of the Supreme Court, the question is referred to it for due consideration. The Supreme Court may or may not take the question but once it is taken and the opinion is given, it is expected to be final.

(c) Guardian of Fundamental Rights :

1. The Constitution guarantees the citizen the right to move the court for the enforcement of Fundamental Rights.

2. It can issue orders or writs like Habeas Corpus for the enforcement of Fundamental Rights.

3. Any law passed by the Parliament which abridges or takes away the Fundamental Right will be declared null and void by the Supreme Court.

SECTION-B

Answer 6.

- (a) The Indian National Congress was established on 28th December, 1885. Womesh Chandra Bonnerjee presided over the first session of the Indian National Congress in Bombay.

- (b) Refer to ICSE Paper 2015, Answer 6 (a).

(c) The basic beliefs of the early nationalists were :

1. They had faith in the sense of justice, fair play, honesty and integrity of the British.

2. It was their hope that the British would grant 'Home Rule' to them and relied on the solemn pledges made by the British Government.

3. They believed that the British rule had many benefits e.g.: It helped in removing social evils, like sati, child marriage, untouchability etc.

4. They thought that the British would help Indians to govern themselves according to western standards.

Answer 7.

- (a) Non-cooperation is a way of protesting in which one does not cooperate with the evil doer. Gandhiji asked the people not to assist the foreign government to rule over them.

(b) The objectives of the Non-Cooperation Movement were :

1. To attain self-government within the British empire or attaining Swaraj.

2. Annulment of the Rowlatt Act and punishing those guilty of atrocities in Punjab i.e., the British Government should express its regret on the happenings in Punjab.

3. The British should adopt a lenient attitude towards Turkey, and restore the old status of the Sultan of Turkey.

- (c) Refer to ICSE Paper, 2019, Answer 7 (c).

Answer 8.

- (a) The Viceroy in the picture is Lord Mountbatten, a member of the British royal family.

(b) Lord Clement Atlee sent Lord Mountbatten as the Viceroy of India :

1. To take steps for the transfer of power to the Indians.
2. To restore peace amongst the Congress and the League.

(c) Lord Mountbatten came to a conclusion that partition of the India was the only solution to the existing communal problem in India. **Therefore in his plan, he proposed :**

1. That the country would be divided into two dominions, that is, India and Pakistan.
2. The Princely States could either choose between the two countries or resolve to remain independent.
3. A plebiscite would be held in the North-West Frontier Province to ascertain their choice between the two dominions.
4. The provinces of Assam, Bengal and Punjab would be divided and the boundaries would be delineated.

(d) Refer to ICSE Paper, 2020, Answer 8 (c).

Answer 9.

(a) (i) **The rise of Fascism and Nazism as a cause to the Second World War :**

1. Italy wanted to revive the glory of the old empire.
2. She joined the Anti-Comintern Pact in 1937 and formed a ten year alliance with Germany to strengthen her position.
3. Italy demonstrated her imperialistic designs by attacking Abyssinia.

In Germany :

1. Hitler wanted to re-establish the German empire in the International field.
2. He flouted the military causes in the Treaty of Versailles and declared re-armament.
3. In 1938, he annexed Austria and dismembered Czechoslovakia.

(ii) 1. Japan was determined to dominate the Far-East.

2. It intervened in Manchuria and occupied it and set up a government in spite of League's opposition.

3. Japan also started an undeclared war against China in 1931. China appealed to the League to declare sanctions against Japan.

4. Japan joined the Berlin-Rome Axis to form the Rome-Berlin-Tokyo Axis to further its policy of expansion and conquest.

5. In 1933, Japan left the League and started occupying the British and American properties in China.

6. Britain and France followed the policy of appeasement, thinking that Japanese could be used to weaken China.

(b) **The consequences of the war with reference to :**

1. The formation of the United Nations :

- (1) The horrors of the two world wars and
- (2) The failure of the League of Nations led to a meeting of the big three—Roosevelt, President of the USA, Churchill, Prime Minister of Britain and Stalin, Premier of the USSR at Yalta in February 1945.
- (3) They resolved to convene a conference of the representatives of all the nations at San Francisco to draw up 'Charter of the United Nations.' The UNO was thus established on October 24, 1945.

2. Defeat of Axis Powers :

- (1) The Allied Forces recaptured African territories lost by France.
- (2) This was followed by their victory over Italy. The Allied Powers forced Italy to make an unconditional surrender and send an armistice.
- (3) In 1945, the Allied forces moved across the Rhine and defeated the German forces.
- (4) The Allied Powers turned their attention towards Japan. The British forces liberated Malaya, Myanmar, Singapore and Philippines.
- (5) In the Potsdam Conference, Japan was asked to surrender, but did not.
- (6) America dropped the first atomic bomb on Hiroshima and Nagasaki in 1945. Japan offered to surrender and the war came to an end. At the end of the war, Germany was divided into four zones. Japan and Italy became weak. The American army was to occupy Japan till 1952.

Answer 10.

(a) 'Non-Alignment' is the international policy of a sovereign state meant to settle international disputes through non-violence and international co-operation by refusing India's alignment with any power bloc or alliance. (The United States or the Soviet Union, in particular.) This policy aimed at being neutral.

(b) Refer to ICSE Paper 2017, Answer 10 (c).

(c) 1. Jawaharlal Nehru was one of the chief architects of the Non-Alignment Movement.

2. He advocated inland foreign policy and discouraged entertaining any foreign super-power.

3. He advocated the 'Panchsheel' (five) principles to promote world peace.
4. He called upon the newly independent nations of Asia and Africa to keep themselves away from the politics of the two power blocs.
5. He advocated mutual respect for the sovereignty and territorial integrity of all the nations.
6. At the first NAM summit held at Belgrade, Nehru emphasised on negotiations for peace; negotiations for complete disarmament and ending imperialism in all forms.
7. He condemned North Korean aggression against South Korea.
8. In 1956, India condemned the Anglo-French action in Egypt on the Suez Canal issue.
9. He did not approve of military or economic alliances like NATO, CENTO, SEATO initiated

by USA to contain communism or the ones promoted by the Soviet Union like the Warsaw Pact, Cominform.

10. He believed that these alliances would encourage colonialism and imperialism and would produce a race for armaments.

11. He rejected communism and capitalism and strongly advocated the principles of democratic socialism.

12. He was against the policy of apartheid in South Africa. India sponsored a resolution calling upon the nations to take diplomatic and economic steps against South Africa and to force her to give up the policy of racial discrimination.

13. He was against the mad race for armaments and called for disarmament and abolition of stock piles of nuclear weapons.

14. India signed a treaty in 1960 for banning atomic tests.

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GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt *all* questions from this Part)

Question 1.

- (a) Name the two types of authority in a federal set up in India. [1]
- (b) What is meant by the term Universal Adult Franchise? ** [1]
- (c) How is the Speaker of the Lok Sabha elected? [1]
- (d) When can the Vice-President cast a vote in the Rajya Sabha? [1]
- (e) State one reason why the President is elected indirectly. [1]
- (f) Who is the Executive head of a State? [1]
- (g) Mention the different categories of ministers in the Union Council of Ministers. [1]
- (h) Explain the term 'Collective Responsibility'. [1]
- (i) Name the courts that are empowered to issue writs for the enforcement of Fundamental Rights. [1]
- (j) Which is the highest criminal court in a district? [1]

Question 2.

- (a) What was the General Service Enlistment Act? [2]
- (b) What was the influence of Western education on the minds of the educated Indians in the 19th Century? [2]
- (c) Who exposed the economic exploitation of India through his book 'Poverty and Un-British Rule in India'? [2]
- (d) What was the importance of the Lucknow Pact of 1916? [2]
- (e) Name the leaders of the Khilafat Movement that was launched in India to champion the cause of the Caliph of Turkey. [2]
- (f) Why was the Simon Commission boycotted by the Indians? [2]
- (g) What were the two proposals related to the Princely States in the Mountbatten Plan? [2]
- (h) What was the immediate cause of the First World War? [2]
- (i) What is meant by the term Cold War? [2]
- (j) Name the two architects of NAM. [2]

** Answer is not given due to change in the present syllabus.

PART-II (50 Marks)

SECTION-A

(Attempt any *two* questions from this Section)

Question 3.**

Discuss the relationship between the two houses of a State Legislature with reference to the following :

- (a) Money Bills. [3]
- (b) Non-Money Bills. [3]
- (c) Control over the Executive. [4]

Question 4.**

At the head of the Council of Ministers in a State is the Chief Minister, who is the real Executive Head of the State. In this context explain the following :

- (a) The appointment of the Chief Minister. [3]
- (b) His relationship with the Council of Ministers. [3]
- (c) His relations with the Governor. [4]

Question 5.

The country's Judicial System has a Supreme Court at its apex. In this context discuss the following :

- (a) Manner of appointment of judges. [3]
- (b) Term of office and removal of judges. [3]
- (c) Its power of 'Judicial Review'. [4]

SECTION-B

(Attempt any *three* questions from this Section)

Question 6.

The early Congressmen were liberal in their views and programmes. This led to the rise of Assertive Nationalists who demanded more forceful action against the British. In this context discuss the following :

- (a) Reasons why the early Congressmen were called Moderates. [3]
- (b) How did Moderates differ from the Assertive Nationalists in realizing their objectives? [3]
- (c) How did Tilak bring a new wave in Indian politics that was distinct from the early Congressmen? [4]

Question 7.

The reasons for the formation of the Muslim League were many. In this context explain :

- (a) Any three factors that led to the formation of the Muslim League in India. [3]
- (b) Any three demands made by the Muslim Deputation in 1906 to the Viceroy Lord Minto. [3]

- (c) What were the aims and objectives of the Muslim League? [4]

Question 8.

The Congress working committee passed the famous 'Quit India' resolution at Wardha in July 1942. With reference to this, answer the following questions :

- (a) What were the reasons for the passing of this resolution? [3]
 (b) What was the British Government's reaction to the 'Quit India' Movement? [3]
 (c) What was the impact and significance of this movement? [4]

Question 9.



Study the picture given above and answer the questions that follow :

- (a) Identify the leader in the picture. [2]
 (b) State any four factors that led to the rise of dictatorships in Germany and Italy. [4]
 (c) Why did he invade Poland? State two similarities between Fascism and Nazism. [4]

Question 10.

The United Nations Organization was established to maintain peace and 'promote social progress and better standards of life in larger freedom'. With reference to this, explain the following :

- (a) The composition of the Security Council. [3]
 (b) The functions of the Security Council related to maintaining World Peace. [3]
 (c) The role of UNESCO in the development of Science and Technology. [4]

ANSWERS

PART-I

Answer 1.

- (a) Two types of authority in a federal set up in India are the Central Government and the State Government.
 (c) The Speaker of the Lok Sabha is elected from among its own members by majority vote.
 (d) The Vice-President can cast a vote in the Rajya Sabha in case of a deadlock, i.e., an equality of votes.
 (e) The President is elected indirectly because it would be difficult to make arrangements for an election in which millions of people were to participate.
 (f) There is a Governor for each state who is appointed by the President.
 (g) The ministers in the Union Council are of three categories : Cabinet Ministers, Ministers of State and Deputy Ministers.
 (h) 'Collective Responsibility', means that ministers are collectively responsible to the Legislature. It signifies that if 'No-Confidence Motion' is passed against a single minister, the entire Council of Ministers shall resign.
 (i) The Supreme Court and the High Courts are empowered to issue writs for the enforcement of Fundamental Rights.
 (j) The highest criminal court in a district is the Sessions Court.

Answer 2.

- (a) In 1856, the General Service Enlistment Act was passed by the British Parliament. According to this Act, the Indian soldiers could be sent overseas. The Brahmin soldiers saw in it a slander to their caste. According to an accepted belief, it was considered a taboo for a Brahmin to cross the seas. This Act disregarded the feelings of the Indian troops, which led to a feeling of resentment among them. As a result, they were angry with the British.
 (b) Refer to ICSE Paper, 2017 Answer 6 (a).
 (c) Dadabhai Naoroji exposed the economic exploitation of India through his book 'Poverty and Un-British rule in India'.
 (d) The Lucknow Pact of 1916 pointed out the steps needed to gain self-governance for India. It symbolized Hindu-Muslim unity which weakened the British attitude and forced the government to announce its future policy.
 (e) Mohammad Ali and Shaukat Ali (The Ali brothers) were the leaders of the Khilafat Movement that was launched in India to champion the cause of the Caliph of Turkey.
 (f) All the political parties including the Congress and Muslim League decided to boycott the commission because it was an all-white commission with no Indian associated with it. It was completely unrepresentative of Indians and was received

with black flags, mass demonstrations, hartals and slogans of 'Simon Go back' all over the country.

(g) The two proposals related to princely states in Mountbatten Plan were :

1. All treaties and agreements between the British government and rulers of Indian states will lapse.
2. They would be free to associate themselves in either of the two dominions *i.e.* India or Pakistan or to remain independent.

(h) The assassination of Austrian Prince Archduke Franz Ferdinand in Sarajevo on June 28, 1914 was the immediate cause of the First World War.

(i) Cold war is a diplomatic and ideological war. It is a state of political unfriendliness between two or more countries. It is not a physical war being fought by the continents, rather a state of uneasy peace, the lull before the storm.

(j) The two architects of the NAM were :

1. Jawaharlal Nehru of India
2. Joseph Broz Tito of Yugoslavia

PART-II SECTION-A

Answer 5.

(a) Refer to ICSE Paper 2016, Answer 5 (b) (ii).

(b) Term of office and removal of Judges : A judge of the Supreme Court continues in office until he attains the age of 65. However, Article 124 (2) provides that a judge may resign by writing letter addressed to the President.

A judge of the Supreme Court may be removed from office on the grounds of proved misbehaviour and incapacity, by the President, by an order issued after an address has been presented to him by the Parliament. Such an address must be supported by a majority of not less than two-thirds of the members present and voting in each House of Parliament.

(c) Refer to ICSE Paper 2020, Answer 5 (b).

SECTION-B

Answer 6.

(a) The earlier leaders of the Congress were called the 'Moderates' as they were not extreme in their thinking and activities. In other words, the demands raised by the earlier leaders of the Congress were of moderate nature. Moreover, they used constitutional and peaceful methods like filing petitions, appeals, resolutions, etc. Therefore, the period from 1885 to 1905 is generally described as being the moderate phase. The Congress was controlled by the moderate

leaders such as Dadabhai Naoroji, Pherozeshah Mehta, Gopal Krishna Gokhale, W. C. Bonnerjee, Surendranath Bannerjee and Madan Mohan Malaviya.

(b) Difference between Moderates and Assertive Nationalists:

| Basis | Moderates | Assertive Nationalists |
|--|--|---|
| 1. Basic beliefs | The Moderates looked to England for inspiration and guidance. Gokhale, Ranade, Naoroji and other moderate leaders had almost unlimited faith in the British goodness. They readily conceded the benefits of British rule to India. | They had a great dislike for the British. Tilak, Lajpat Rai, Bipin Chandra Pal and others had no faith in the goodness of the British. They cursed the British rule that brought misery to the people of India. |
| 2. Their ultimate object | In 1906, the Moderates talked of Swaraj as the goal of India. It meant the system of government as found in the self-governing British colonies. | They did not aim at mere economic or administrative reforms. Their ideal was 'Absolute Swaraj'. |
| 3. Their programmes and methods of struggle | The Moderates carried on their work by means of petitions, appeals, resolutions, meetings and deputations. | The Extremists described these methods as "Political Mendicancy" because they believed in direct action. |
| 4. Approach to boycott movement | The Moderates' boycott was launched only to the British goods. | The Nationalists' boycott also included boycott of government services, titles and honours. |
| 5. Inclusion of masses in freedom struggle | The Moderates believed in constitutional methods, as such the efforts bore the mark of individuality and were isolated from the masses. | The Aggressive Nationalists believed in the strength of masses. They promoted the freedom movement into a mass struggle. |

(c) The new wave in Indian politics was the result of efforts put in by Bal Gangadhar Tilak. The distinct features of his movement to attain Swaraj were :

1. His role in the Anti-Partition Movement : The partition of Bengal gave him a big opportunity to expose evil design of the government. Leaders

like Tilak, Bipin Chandra and Lajpat Rai transformed the anti-partition movement into a movement of Swaraj.

2. Bitter attacks on government: Year after year, the Congress passed nearly the same resolutions, without much effect on the government. Therefore, Tilak came to the conclusion that "reforms would be secured not by talk, but by action".

3. Home Rule Movement : The year 1916 saw the establishment of the Home Rule Leagues in Madras (Chennai) and Maharashtra. The two leagues were led by Annie Besant and Tilak.

4. Tilak's political beliefs – "Swaraj is my birth Right and I shall have it" : Tilak talked of 'Swaraj' in as early as 1896-97. Swaraj and Swadeshi had become the battle cry of him.

Answer 7.

(a) Refer to ICSE Paper 2016, Answer 8 (b).

(b) The three demands made by the Muslim Deputation in 1906 to the Viceroy Lord Minto were :

1. Separate electorates : The Muslims should be given the right of sending their representatives to the Provincial Councils and Imperial Legislative Council through separate communal electorates.

2. Separate representation in the municipal and University bodies : There should be some scheme for giving adequate representation to the Muslims in municipal and District Boards and the senates and syndicate of Indian Universities.

3. Greater representation in civil, military and Judicial services : There should be greater representation of the Muslims in all services – civil and military. Further, there should be Muslim judges in every High Court.

(c) Refer to ICSE Paper 2016, Answer 8 (c).

Answer 8.

(a) Refer to ICSE Paper 2020, Answer 7 (b).

(b) The British government's reaction to the 'Quit India Movement' was rather harsh.

The oppressive measures included :

1. The British government reacted quickly and used all types of means to suppress this movement. It used lathi charges, mass arrest and firing in many parts of the country.

2. The government imposed restrictions on the press. These years were a period of terrible sufferings for the Indians.

3. All the important Indian leaders including Gandhiji and Nehru were arrested and taken to unknown destinations and the Congress was once again declared illegal.

4. The British government succeeded in crushing the movement. New ordinances were promulgated to frighten the people. Heavy fines were imposed on the people. Many villages were searched and burnt.

5. The government imposed martial law to terrorize the people. By the end of 1942, more than 60,000 people were arrested and sent to jails without any trial.

They were treated badly and the prisoners had to live in inhuman conditions. The oppressive measures used by the government killed nearly ten thousand people and wounded many more.

(c) Refer to ICSE Paper 2020, Answer 7 (c).

Answer 9.

(a) The above picture is of 'Adolf Hitler' who joined German army as a member of NSDAP. Hitler began his political career at Munich and rose to the position of undisputed dictator of the third Reich.

(b) **The four factors that led to the rise of dictatorships in Germany and Italy were :**

1. Dissatisfaction with the peace treaties : Italy joined the First World War on the side of the allies. Whole of the Italy was dissatisfied with the compensation granted to Italy after the war. Similarly, Germany felt discriminated by the Treaty of Versailles. A large chunk of its occupied and own territories were taken away and shared by other European powers. Military sanctions were imposed. Adolf Hitler blamed the democratic government for this.

2. Economic factors : Economic conditions in Italy after the war were very bad. War debts and budget deficit caused lots of difficulty. The salaried employees, the farmers and the industrial workers felt the pinch of post-war inflation. The war had also taken a stall at the German economy. Additionally, heavy war penalties imposed on Germany made economic recovery impossible and resulted in high rate inflation and unemployment. Nazi ranks were filled by unemployed youth.

3. Inefficient and corrupt democratic government : The post-war democratic governments were weak. They could not respond properly to the needs and aspirations of the people. Short lived coalition governments in Italy were unable to tackle the problems faced by the people in their day-to-day life. Similar was the political scenario in Germany where Weimar Republic failed miserably in tackling economic downfall and ensuing riots.

4. Rise of totalitarian ideology : In Italy, there rose a strong feeling for a strong leader with absolute powers to restore peace and economic stability in Germany highlighting the threat of a communist takeover. Hitler was successful in convincing the people that only Nazism could provide a stable and economically viable alternative.

(c) The main reason, why Hitler invaded Poland may be listed as follows :

1. To negate any military alliance between Poland and other European nations against Germany.
2. To gain a foothold in the territory surrounding Russia.
3. To make the world know his aversion to the Treaty of Versailles.
4. Hitler despised Chamberlain's guarantee to support Poland in case of an attack by Germany. He attacked Poland to teach Chamberlain a lesson.
5. Hitler entered into a pact with Stalin which included a secret clause to divide Poland between them. It was disagreement also which worked as a shield and prompted him to attack Poland.

The two similarities between Fascism and Nazism were :

1. Negation of democracy and belief in one-party or one-man rule. Both Fascists and Nazis did not allow the rule of any other party.

2. Aggressive Nationalism and Imperialistic policies were followed by both the Nazis and the Fascists. They glorified the nation. They followed an aggressive foreign policy. For example, Italy annexed Abyssinia in 1936 and Hitler occupied Austria and called it the Anschluss or union with Austria.

Answer 10.

(a) Refer to ICSE Paper 2019, Answer 10 (b).

(b) Refer to ICSE Paper 2017, Answer 10 (b).

(c) **The role of UNESCO in the development of Science and Technology are :**

1. Promotes basic research : UNESCO promotes basic research in the fields like geology, mathematics, physics and oceanography. Engineering and Technology schemes in a number of developing countries are being financed by UNESCO.

2. Organizes conferences : It organizes regional and world conferences to bring together scientists, technicians and technologists who have a common interest.

3. Providing information : It brings the benefits of science to all countries by providing information through bulletins, journals and exhibitions. 'Courier' is the official monthly magazine of UNESCO.

4. Encouraging studies : It encourages the study of social sciences, especially to ensure that attention is paid to the topics like factors causing violence or conflicts and violation of human rights.

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GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

- (a) Name the law making body of the Union Government. [1]
- (b) What is the difference in the term of office between the Lok Sabha and the Rajya Sabha ? [1]
- (c) Name the bill which cannot originate in the Rajya Sabha. [1]
- (d) What is a bicameral legislature ? Name any one state that has a bicameral legislature.** [1]
- (e) Who settles disputes arising in connection with the election of the President of India ? [1]
- (f) Which body formulates the foreign policy of India ? [1]
- (g) Mr. Ajayveer Singh is a member of the Lok Sabha. Can he be appointed as a Governor of a State ? If so, under what criterion ? [1]
- (h) Who presides over the meetings of the state cabinet ?** [1]
- (i) What is the tenure of a judge of the Supreme Court ? [1]
- (j) How does the High Court protect the Fundamental Rights of individuals ? [1]

Question 2.

- (a) What was Nana Saheb's grievance against the British ? [2]
- (b) State any two repressive policies of Lord Curzon. [2]
- (c) Mention two reasons for the Moderate's faith in the British sense of justice. [2]
- (d) When was the Muslim League formally founded ? Who presided over its session at Dhaka ? [2]
- (e) Name the party formed by Subhash Chandra Bose. What was its immediate objective ? [2]
- (f) What was mentioned in the Cabinet Mission Plan regarding Provincial Autonomy ? [2]
- (g) Give two similarities in the foreign policies of Mussolini and Hitler. [2]
- (h) Name the signatory countries of the Triple Alliance (1882). State the rival bloc that was formed. [2]
- (i) Who appoints the Secretary General of the United Nations ? [2]
- (j) What do you understand by the term 'Human Rights'? When is Human Rights Day celebrated each year ?** [2]

** Answer is not given due to change in the present syllabus.

PART-II (50 Marks)

SECTION-A

(Attempt any **two** questions from this Section)

Question 3.

With reference to the Union Parliament, answer the following questions :

- (a) What is the maximum strength of the Lok Sabha provided by the Constitution ?
How many members does the President nominate to the Lok Sabha ?
How are members to the Lok Sabha elected ? [3]
- (b) The two Houses of the Parliament enjoy co-equal powers in many spheres—explain it by giving any three examples. [3]
- (c) Explain any four of the Rajya Sabha's powers in India's federal set up. [4]

Question 4.

The President of India is the Head of the Indian Republic while the Governor is the Head of the State Government. In this context, answer the following questions :

- (a) Besides being a citizen of India, state three other qualifications required by a person to be eligible to be the Governor of a state.** [3]
- (b) Enumerate three similar features in the legislative powers of the President and the Governor. [3]
- (c) Under what circumstances can the President of India declare an emergency in the country ? [4]

Question 5.

The High Court is the apex of the judiciary in the state. In this context, answer the following questions :

- (a) State the composition of the High Court. State the qualifications required to become a High Court Judge. [3]
- (b) Why is the High Court also known as a Court of Record ? [2]
- (c) (i) What is the meaning of Lok Adalat ? [2]
(ii) State any three advantages of the Lok Adalat. [3]

SECTION-B

(Attempt any **three** questions from this Section)

Question 6.

With reference to Nationalism and the birth of the Indian National Congress, explain each of the following :

- (a) Vernacular Press Act, 1878. [3]
 (b) Role of Sir Syed Ahmad Khan in the formation of the Muslim League. [3]
 (c) State any four immediate objectives of the Indian National Congress. [4]

Question 7.

One of Lord Curzon's administrative measures that resulted in a strong resentment from the masses was the Partition of Bengal in 1905. In this context, answer the following questions :

- (a) What was Lord Curzon's argument in favour of the Partition of Bengal ?
 How did the nationalists interpret Lord Curzon's motives ? [4]
 (b) How did the people react to the Partition of Bengal ? [3]
 (c) What was the impact of the Swadeshi Movement on Indian Industries ? [3]

Question 8.

Gandhiji introduced new ideas in politics and adopted new methods to give a new direction to the political movement. In this context, answer the following questions :

- (a) Gandhiji's doctrine of Satyagraha. [3]
 (b) Gandhiji's Social Ideals. [3]
 (c) Which mass struggle was launched by him on non-violent lines in 1920 ?
 Explain in brief the programmes of such a campaign. [4]

Question 9.

Study the picture given below and answer the questions that follow :



- (a) Identify the organisation associated with the above emblem.
 Mention any three principles of this organisation. [4]
 (b) Where is the headquarters of this organisation located ?
 Who can become its member ? [3]
 (c) Name the principal judicial organ of this organisation and explain its composition. [3]

Question 10.

With reference to the Cold War and the Non-Aligned Movement, answer the following questions :

- (a) Explain Truman's Doctrine. [3]
 (b) State any three consequences of the Cold War. [3]
 (c) Mention four major objectives of the Non-Aligned Movement. [4]

ANSWERS**PART-I****Answer 1.**

- (a) Legislature is the law making body of the Union Government.
 (b) The term of office of the Lok Sabha is 5 years whereas, the Rajya Sabha is the Permanent House, but one-third of its members retire after every second year. Thereafter, fresh elections are announced for the seats vacated at the beginning of the third year. Every member enjoys a six year term and is eligible for re-election.
 (c) Money bills cannot originate in the Rajya Sabha.
 (e) According to the 29th and 44th Constitution Amendment Act, the Supreme Court decides any disputes regarding the election of the President.
 (f) The foreign policy of India is framed by the Cabinet or the Council of Ministers along with the Prime Minister.
 (g) Yes, he can be appointed as a Governor of the state but, he has to resign from the membership of the Lok Sabha.

- (i) A judge of the Supreme Court works till he attains the age of 65 years.
 (j) The High Court protects the Fundamental Rights from being eroded, infringed upon or abridged by any individual or a group of individuals or the state itself. It can issue different writs to the offending party/parties.

Answer 2.

- (a) The British refused to accept Nana Saheb, the adopted son of the last Peshwa, Baji Rao II, as the ruler of the Marathas.
 (b) Two repressive policies of Lord Curzon were the Indian Universities Act of 1904 and the Sedition Act, and the Official Secrets Act, which curtailed the liberties of all sections of society.
 (c) The Moderates had faith in the British sense of justice because they relied on the solemn pledges given by the British government from time to time. They also considered their association with England a boon as the British had done a lot of good to India by removing various defects from Indian society.

- (d) The Muslim League was formed in 1906. Waqar-ul-Mulk presided over its session at Dhaka.
- (e) The party formed by Subhash Chandra Bose was the Forward Bloc. Its immediate objective was to achieve complete and immediate independence of India.
- (f) The provinces would be free to form regional unions to which they would surrender some powers by mutual consent. There were to be 3 groups of provinces and each would have its separate constitution and if any province wanted to opt out of the group after the first general election, they could do so.
- (g) **Two similarities in the foreign policies of Mussolini and Hitler were :**
1. To do away with the evil effects of the humiliating Treaty of Versailles.
 2. To increase the prestige and glory of their respective countries in international spheres.
- (h) The Triple Alliance, also known as the Triplice, was a secret agreement between Germany, Austria, Hungary and Italy formed on 20 May, 1882 and renewed periodically, until World War I.
- In 1882, Serbia joined the alliance, in effect, through a treaty with Austria-Hungary.
- Romania joined the group in 1883 and a powerful Central European bloc was created.
- (i) The Secretary General of the United Nations is appointed by the General Assembly on the recommendation of the Security Council.

PART-II SECTION-A

Answer 3.

- (a) The maximum strength of the Lok Sabha provided by the Constitution is 552 members. The President nominates two members of the Anglo-Indian community to the Lok Sabha.
- The members of the Lok Sabha are directly elected by the people. The principle of Universal Adult Franchise has been adopted which means that all citizens of the age of 18 and above have the right to vote, if not otherwise disqualified under the law.
- (b) **The two Houses of the Parliament enjoy co-equal powers in many spheres because :**
1. Either House can frame charges and impeach the President for violation of the Constitution.
 2. An ordinary bill can originate in either House of the Parliament and must be passed by both the Houses of Parliament.

3. Both the Houses have equal rights of asking questions or bringing in various kinds of motions against the government.

(c) Four powers of Rajya Sabha are :

1. Only Rajya Sabha has the power to declare that a subject of the State List has assumed national importance and should be included in the Union List.
2. If the Lok Sabha is dissolved due to internal disturbances or a civil war, then the Rajya Sabha shoulders all the responsibilities of the Union Legislature.
3. The Rajya Sabha can decide by 2/3rd majority to set up a new All India Service.
4. The Rajya Sabha has the exclusive right to initiate a resolution for the removal of the Vice President.

Answer 4.

(b) Three similar legislative powers of the President and the Governor are :

1. The first session of the Parliament is addressed by the President, similarly at the state level, it is the Governor who addresses the first session of the Legislative Assembly.
2. Both exercise similar powers to summon or prorogue the session of the Parliament and the State Assembly, respectively.
3. The President may appoint two members of the Anglo-Indian Community to the Lok Sabha. The Governor may exercise similar power if he feels that the community is not adequately represented in the Vidhan Sabha.

(c) The President can declare an emergency under the following circumstances :

1. There is a danger of foreign aggression or danger to the peace and security of the country because of a civil war, insurgency or any other such case.
2. A setback to the financial stability or credit feasibility of the country is likely to occur or has occurred.
3. The Constitutional machinery in a State has broken down or there is a deadlock, because of political uncertainties or otherwise.

Answer 5.

- (a) Refer to ICSE Paper 2019, Answer 5 (a) (i) and (ii).
- (b) Refer to ICSE Paper 2019, Answer 5 (b).
- (c) (i) 'Lok Adalat' means 'The People's Court'. It is a sort of a voluntary forum comprising a serving or retired judicial officer and other members such as lawyers, students and social workers.

(ii) Three advantages of Lok Adalat are :

1. The Lok Adalats work in the spirit of compromise so that none of the parties feels unhappy.
2. They deliver speedy and inexpensive justice.
3. The award passed by it, is final and binding.

SECTION-B**Answer 6.**

- (a)** The Vernacular Press Act was passed by Lord Lytton in 1878. It was passed to suppress the nationalistic feelings among the Indians. It placed many restrictions on the newspapers published in Indian languages. This Act was termed as the Gagging Act because the vernacular paper 'editors' were required to publish nothing that would excite disaffection against the government. Editors who opposed it were sentenced to jail.

- (b) Role of Sir Syed Ahmad in formation of the Muslim League :** Sir Syed Ahmad Khan was the first to advise the Muslims to receive western education as they had remained aloof from it which led to their political, social and economic backwardness. Initially, he was a man with liberal views and a brave nationalist. He even founded the Mohammedan Anglo-Oriental College in 1875 at Aligarh to spread education. He started instigating communal sentiments among the Muslims under the influence of Mr. Beck, the principal of the M.A.O. He even started advising the Muslims to stay away from the Hindus and support the British Rule in India. This paved the way for the formation of the Muslim League.

- (c)** Refer to ICSE Paper 2015, Answer 6 (a).

Answer 7.

- (a)** Lord Curzon's argument in favour of the partition of Bengal was an 'administrative necessity'. According to him, Bengal was a very big province to be administered efficiently by a single provincial government. So, it was to be divided for better administration of the province.

The Indian Nationalists interpreted this as follows :

1. Bengal was the nerve centre of Indian Nationalism at that time. So, the British hoped to stop the rising tide of nationalism by partitioning Bengal.
2. The partition of Bengal intended to curb Bengali influence by not only placing Bengalis under two administrations but by reducing them to a minority in Bengal itself.
3. The partition was meant to foster division on the basis of religion. East Bengal would be

predominantly a Muslim majority state and West Bengal a Hindu majority state.

(iv) It was considered as a price for the Muslim League's loyalty towards the British.

- (b)** When the proposal was published, then there was a great hue and cry from all quarters. When the partition came into effect the people started a strong movement against it known as the 'Anti-partition' Movement. The people, under the leadership of great Nationalist leaders, understood the real motive of the partition which was to flare up the confrontation between the Hindus and the Muslims. The people felt humiliated, insulted and tricked. They were ready to sacrifice their lives and face death fearlessly.

- (c)** The Swadeshi Movement had a positive impact on the Indian industries. It gave new life to Indian industries, especially cottage industry as the use of India made goods replaced the foreign goods in Indian homes. It led to the increased demand of Swadeshi goods like handlooms and handicrafts, Match boxes, soaps and textiles. It gave employment to the unemployed craftsmen and gave an impetus to the cottage industries.

Answer 8.

- (a)** Gandhiji's philosophy was based on non-violence. Satyagraha was one of his great weapons. Satyagraha means to 'disobey the law without resorting to violence'. According to him, passive resistance was the weapon of the weak while, Satyagraha was the weapon of the strong. He believed that a Satyagrahi must be morally and spiritually strong so that, he could fight injustice with non violence. He laid stress upon peaceful talks, non-cooperation, picketing, strike, social boycott, hunger strike, civil disobedience etc. to realize his aim of Satyagraha.

- (b)** Gandhiji was a great social reformer. He was against the caste system and considered untouchability a curse on the Hindu society. He called the untouchables 'Harijans' and requested people to respect them like human beings. In fact, he lived with them in their colonies. Under his guidance, the Congress adopted the programme for their upliftment.

He even advocated for equal rights and status for women and inspired them to play an important role in the National Movement.

He also introduced a new system of basic education, wherein, the children learnt some art so that they could earn while learning. He attached great importance to character building and acquiring skills and stressed upon simple and moralistic life.

- (c) In 1920, Gandhiji launched the Non-Cooperation Movement. Non-Cooperation means withdrawal of all support and cooperation. The target of this programme was the British Government. It had only one objective and that was to cripple the government and to create such problems to the administration that would make it difficult to function without the willing cooperation of the Indian people. Another objective was to make it known to the British that they could not run the administration of India even for a day unless the Indians cooperated with them. The people returned all titles, honours, awards, degrees given by the government. They boycotted government functions, lawyers gave up their practice, students left schools and colleges, teachers resigned from their posts. People started boycotting assembly and provincial elections and gave up their seats. People observed strikes and refused to pay taxes. Khadi became the symbol of freedom.

Answer 9.

- (a) The organisation associated with the emblem is the United Nations Organisation. Its three principles are :
1. It is based on the sovereign equality of all its members.
 2. The U.N.O. will not intervene in the internal affairs of a country.
 3. Member nations will not use the threat of violence in their international relations.
- (b) The headquarters of this organisation is located in New York city. Its European office is in Geneva. Its membership is open to all peace-loving nations, which agree with the objectives of the U.N. and are ready to abide by its principles. The admission, suspension and expulsion of members are decided by the General Assembly on the recommendation of the Security Council by a 2/3rd majority of votes. Almost all countries of the world are its members now.
- (c) Refert to ISCE Paper 2020, Answer 9 (c).
- (b) The cold war led to one crisis after another, such as the Berlin Blockade (1948-49), crisis over missiles in Cuba (1962) and military intervention in Czechoslovakia.
- In such a situation, many countries including India adopted a policy of keeping out of military alliances and working for the development of their people and peace in the world.
1. The USA emerged as the sole superpower in the world and the USSR got fragmented into a number of countries.
 2. The cold war accelerated the arms race.
 3. It led to the formation of military alliances.
- (c) The four objectives of the Non-Aligned Movement are :
1. **Maintenance of international peace** : Non-aligned nations work for the maintenance of international peace and security. They feel that the course adopted by them is best designed to minimize the threat to peace.
 2. **Disarmament** : NAM favours disarmament and in particular opposes the possession and use of nuclear weapons.
 3. **Creation of a new international economic order** : Since 1970s, developing states are looking for a new international economic order based on equality and justice. They are demanding reforms in International financial institutions like World Bank and IMF, favourable terms for foreign trade, technology transfer and foreign investment to boost their economies.
 4. **Enforcement of human rights** : Enforcement of human rights has been a major objective of the Non-Aligned Movement.

Answer 10.

- (a) The U.S. President Truman was alarmed at the prospect of the growth of communist influence in Greece and Turkey. In order to help these two countries, he requested the U.S. Congress in 1947, for a sanction of 400 million dollars. The declaration of Truman is known as the

'Truman Doctrine' or policy of containment. This doctrine put an end to the U.S. policy of isolation in European politics and it took the step forward to assume leadership in world politics. This doctrine stated that international peace would be endangered in case of communist dictatorship over the free people of the world and the security of the American continent would also be threatened. The chief objectives of this was to protect the independent nations from communist aggression, to preserve the balance of power, to check the expansion of Soviet influence over the Balkans and Middle East. This doctrine was the chief cause of the cold war.



QUESTIONS

PART-I (30 Marks)

(Attempt all questions from this Part)

Question 1.

- (a) Name the main constituents of the Indian Parliament. [1]
- (b) Elections in India are held by secret ballot. Give a reason for the same. [1]
- (c) Mention any one circumstance when the Parliament can make laws on a state subject. [1]
- (d) A Legislative Assembly has 230 members. How many members need to be present in order to enable the House to transact its business ?** [1]
- (e) Mention one circumstance when the President can appoint the Prime Minister using his discretionary power. [1]
- (f) Why is an ordinance issued by a Governor regarded as a temporary measure even though it has the same force as an Act of the State Legislature ?** [1]
- (g) Who can increase the number of Judges of the Supreme Court ? [1]
- (h) What is meant by the Original Jurisdiction of the High Court ? [1]
- (i) Who administers the oath of office to the High Court Judges ? [1]
- (j) Mention one reason why the system of Lok Adalat has become popular. [1]

Question 2.

- (a) There were various factors that promoted the growth of Nationalism in India in the 19th century. Give the meaning of 'Nationalism' in this context. [2]
- (b) Mention any two factors that helped in the growth of nationalism. [2]
- (c) Mention two objectives of the Congress as enumerated by W.C. Bonnerjee. [2]
- (d) Mention the popular 'watchwords' during the French Revolution which influenced Indians due to the introduction of Western Education in India.** [2]
- (e) Mention any two achievements of the Moderates. [2]
- (f) When was Bengal partitioned ? Name the Viceroy responsible for it. [2]
- (g) Mention two contributions of Subhash Chandra Bose to India's freedom struggle. [2]
- (h) State two underlying Principles of Fascism. [2]

** Answer is not given due to change in the present syllabus.

- (i) What is meant by the term 'Veto Power' which is enjoyed by the permanent members of the Security Council ? [2]
- (j) What are the basic principles of Non-Alignment or Panchsheel ? [2]

PART-II (50 Marks)

SECTION-A

(Attempt any two questions from this Section)

Question 3.

Keeping in view the powers of the Union Parliament, answer the following questions :

- (a) Mention three of its Legislative Powers [3]
- (b) Mention three of its Financial Powers [3]
- (c) Mention four of its Administrative or Executive Powers. [4]

Question 4.**

The Governor is a constitutional head of a state. In this context, explain :

- (a) The manner of appointment and term of office of the Governor. [3]
- (b) The 'Governor's Address' [3]
- (c) The Executive powers of the Governor with reference to :
 - (i) Appointments
 - (ii) Right to be informed. [4]

Question 5.

The Supreme Court is the apex court of our country. In this context, explain the following :

- (a) The composition of the Supreme Court of India. [3]
- (b) The meaning of independence of the judiciary and the need to do so. [3]
- (c) The manner in which the Constitution seeks to maintain the independence of the judiciary. [4]

SECTION-B

(Attempt any three questions from this Section)

Question 6.

The First War of Independence of 1857 was a culmination of people's dissatisfaction with the British rule. In this context enumerate the following causes :

- (a) Military causes [3]
- (b) Economic causes [3]
- (c) Political causes. [4]

Question 7.

The Civil Disobedience Movement was significant in the history of the National Movement. In this context write briefly on the following points :

- (a) The circumstances leading to the Civil Disobedience Movement [3]
- (b) The Second Round Table Conference [3]
- (c) The Gandhi-Irwin Pact. [4]

Question 8.



- (a) Identify the event in the above picture. Name the Lady seen in the given picture. Mention the year when the event took place. [3]
- (b) What were the main provisions of the Indian Independence Act ? [3]
- (c) Mention the reasons that made the Congress accept the Partition Proposals. [4]

Question 9.

With reference to the First World War answer the following questions :

- (a) Explain any three causes of the First World War. [3]
- (b) Mention three points under the Treaty of Versailles, which affected Germany. [3]
- (c) What were the objectives of the League of Nations ? Name the organization formed in October, 1945 with objectives similar to those of the League of Nations. [4]

Question 10.

State how each of the following factors were the causes of the Second World War :

- (a) The failure of the League of Nations [3]
- (b) The Aggressive Nationalism of Germany [3]
- (c) The Policy of Appeasement. [4]

ANSWERS

PART-I

Answer 1.

- (a) The main constituents of the Indian Parliament are :
 1. The President of the Union
 2. The Rajya Sabha (i.e., the Upper House) or the Council of States.
 3. The Lok Sabha (i.e., the Lower House) or the House of the People.
- (b) Elections in India are held by secret ballot so that a voter may indicate his choice in favour of any of the candidates without any fear.
- (c) The Parliament can make laws on a state subject during the proclamation of emergency.
- (e) The President can appoint the Prime Minister using his discretionary power in the case of no single party getting a clear majority and If a coalition of parties stakes its claim to form the government, the President has to use his individual judgement and invite such a leader to head the government as Prime Minister who can provide a stable government to the country.
- (g) The number of judges of the Supreme Court can be increased by the Parliament of India.
- (h) Original jurisdiction implies that certain types of cases can be brought directly to the High Court

in the first instance; without having been heard in subordinate courts. It has the authority to hear and decide these cases. For example, the cases related to the violation of Fundamental Rights fall under the original jurisdiction of the High Court.

- (i) The Oath of Office is administered to the High Court Judges by the State Governor.
- (j) Lok Adalat has become popular because it works in the spirit of compromise and delivers speedy and inexpensive justice.

Answer 2.

- (a) 'Nationalism' means patriotism. A person who is patriotic loves his country and feels loyal towards it. The Nationalist Movement started as a revolt against racial discrimination and repressive policies of Lord Lytton and Ilbert Bill controversy etc.
- (b) **Two factors responsible for the growth of Nationalism in India :**
 1. Economic exploitation by the British government.
 2. Repressive colonial policies.
- (c) **Two objectives of the Congress as enumerated by W.C. Bonnerjee are :**
 1. To enable national workers from all parts of India to become personally known to each other.

2. To end all racial, religious and provincial prejudices and to promote a feeling of national unity among all lovers of the country.
- (e) **Two achievements of the moderates were :**
1. They infused national consciousness among various sections of public life.
 2. They promoted the ideas of democracy, fraternity, civil liberties and representative institutions.
- (f) The partition of Bengal happened in 1905 and Lord Curzon, the Governor General was responsible for it.
- (g) **Two contributions of Subhash Chandra Bose to India's freedom struggle were :**
1. He formed the Indian National Army (INA) which incited the armed forces to revolt against the British Raj.
 2. He gave the call to his countrymen "You give me blood and I will give you freedom". He gave the clarion call to INA soldiers 'Delhi Chalo' as their ultimate destination.
- (h) **Two underlying principles of Fascism are :**
1. The Fascists believed in having a powerful dictatorship by controlling all aspects of life of the citizens.
 2. For a Fascist, everything is the state; nothing else exists outside the state.
- (i) The Veto power is a negative power available to the five permanent members of the Security Council by which anyone of them may reject the proposal or recommendations of the Security Council on any matter brought in for consideration. If Veto power is exercised by a permanent member, the matter stands undecided and withdrawn in the Security Council.
- (j) **The principles of Panchsheel are :**
1. Mutual respect for each other's territorial integrity and sovereignty
 2. Mutual non-aggression
 3. Mutual non-interference in each other's internal affairs
 4. Equality for mutual benefit and
 5. Peaceful co-existence.
- of receipts and expenditure of the government for a financial year. The budget is presented in two parts, namely, the Railway Budget and the General Budget.
2. **Supplementary grants :** If the amount authorized for the current financial year is not sufficient, the government may make a fresh demand known as the 'Supplementary Grant'. It is also passed in the same manner as the annual budget is passed.
3. **Votes on account :** If the Union Budget is not passed before the beginning of the new financial year, *i.e.*, April 1, there would be no money for the government to spend. There is, therefore, a device known as 'Vote on Account' which authorizes the government to draw funds from the Consolidated Fund of India until the Budget is passed by the Parliament.
4. **Fixation of salaries :** The salaries and allowances of MPs and Ministers are determined by the Parliament.
5. **Permission for taxes :** No tax can be imposed or money spent by the government, without the approval of the Parliament.
- (c) **The four Administrative or Executive Powers of the Union Parliament are :**
1. **Monetary controls :** The Parliament can move a cut motion when the Union Budget is under consideration. The Parliamentary Committee ensures that the public money is spent in accordance with Parliament's decision.
 2. **Censure Motion and No-Confidence Motion:** If the parliament disapproves of some action or policy of the Union Council or any of its members, they can move a censure motion which would result in the resignation of the government. They can also carry out a 'No-Confidence Motion'.
 3. **Adjournment Motion :** The routine business of the Parliament can be postponed by this and the House can discuss about the government for its acts of omission or commission.
 4. **Question Hour:** Through this, the Parliament seeks information from the government about its policies and performance. The first hour in both the Houses is allotted for this.

PART-II

SECTION-A

Answer 3.

- (a) Refer to ICSE Paper 2020, Answer 3(a).
- (b) **Financial Powers of Parliament :**
1. **The budget :** The Parliament passes the annual Union Budget containing the estimates

Answer 5.

- (a) Refer to ICSE Paper 2016, Answer 5 (b) (i) and (ii).
- (b) Independence of Judiciary means judicial system independent from the control of the executive and the legislature. This also means a fair, impartial, fearless and honest judiciary. An independent judiciary alone can do justice. The Supreme Court and the High Courts administer justice not only

between citizens but also between 'Citizens' and 'State'. Thus, the independence of Judges is essential for the functioning of a democratic constitution.

- (c) Refer to ICSE Paper 2018, Answer 5 (b).

SECTION-B

Answer 6.

- (a) Refer to ICSE Paper 2020, Answer 6 (b).
 (b) Refer to ICSE Paper 2020, Answer 6 (a).
 (c) Refer to ICSE Paper 2020, Answer 6 (c).

Answer 7.

- (a) The circumstances leading to the Civil Disobedience Movement were as follows :

1. In May, 1929, the British Government declared that it would consider dominion status for India. It also decided to hold Round Table Conference in London to examine the Simon Commission's report on India. But the Government did not keep its promise.

2. In the meantime, the Indian National Congress held a historic session at Lahore in December 1929, where resolution of Complete Independence- "Poorna Swaraj" was passed.

3. Gandhiji wrote a letter to Viceroy Irwin as an ultimatum, that, if his eleven points were not implemented by the government then he would start a massive non-violent Civil Disobedience Movement. The Viceroy did not respond positively, so Gandhiji was forced by circumstances to launch the Civil Disobedience Movement by undertaking Dandi March on 12th March, 1930.

- (b) Refer to ICSE Paper 2019, Answer 8 (b).
 (c) Refer to ICSE Paper 2017, Answer 8 (a).

Answer 8.

- (a) The event in the given picture is the swearing ceremony of Jawaharlal Nehru as the Prime Minister of Independent India. The lady seen in the picture is Lady Mountbatten, the wife of the first Governor-General of India, Lord Mountbatten and the year is 1947.

- (b) **The main provisions of the Indian Independence Act were :**

1. Two new dominions to be known as India and Pakistan came into existence. Pakistan was to include East Bengal, West Punjab, Sindh, Baluchistan, North West Frontier Province and district of Sylhet in Assam and India included the remaining territories of British India.

2. Each dominion to have a Governor-General who would act as a Constitutional Head.

3. Division of the Indian Army and sharing of assets between the two dominions.

4. Princely states would become independent.

5. Constituent Assemblies would serve as Central Legislatures and make the constitution.

6. Safeguarding the interests of existing officers.

- (c) Refer to ICSE Paper 2020, Answer 8 (c).

Answer 9.

- (a) **Three causes of the First World War were :**

1. **Aggressive Nationalism** : The unlimited spirit of Nationalism was another cause for the Great War. Love for one's own country led to intense hatred for the other. There existed strong feelings of hatred between France and Germany, between Germany and England and between Russia and the Balkans. After the expulsion of Turks from Europe, there were widespread revolts. Each nation wanted "National Honour" and the idea of mutual *give and take* did not exist among the European nations. This narrow nationalism of competitive patriotism led to bitterness and suspicion amongst nations.

2. **Economic Imperialism** : There was a race for colonial expansion among the European countries. The rapid growth of industrialization brought great demand from the colonies for raw materials and to find new markets for their finished goods. This resulted in colonial conflicts and national rivalries. Each country wanted to fight for its commerce and trade. The entry of Germany in the race for colonies complicated matters further.

3. **Armament Race** : Germany defeated France in the Franco Prussian War and took away the provinces of Alsace and Lorraine. The French never recovered from the shock of this defeat. They waited to take revenge and recover their lost territories. The Italians and Balkan states of Poland, Austria-Hungary, Serbia and Bulgaria were also dissatisfied. By 1914, all European countries were armed and ever ready to fight at the smallest provocation.

The intense nationalism and distrust triggered armament race among European nations. Each country began preparing for war by arming itself to the teeth by stockpiling of arms and ammunition. Germany too began to increase its naval force and started large scale production of arms and ammunitions.

- (b) Refer to ICSE Paper 2017, Answer 9 (c).

- (c) **The objectives of League of Nations were :**

1. To achieve international peace and security. To prevent future wars by establishing

international relations based on justice and honour.

2. To promote cooperation between the nations of the world so as to make people's lives 'happier and nobler'.

3. To formulate plans for the reduction of national armaments to the lowest point, consistent with national safety.

4. To preserve the territorial integrity and political independence of all members of the League against any external aggression.

5. To provide for a peaceful change in international relations by reconsidering international treaties that hindered peaceful relations between the nations.

6. To supervise the working of mandatory systems and promoting human welfare.

The United Nations organisation was formed on 24th October, 1945 with objective similar to those of the League of Nations.

Answer 10.

(a) **The failure of the League of Nations :** The failure of the League of Nations was one of the main causes of the Second World War. When weaker nations appealed to the League to take

action against the aggressors the only weapon it had was economic sanctions which proved to be ineffective. If collective action had been taken against Italy's aggression over Ethiopia or Japan's invasion of Manchuria, the war could have been spared. This also encouraged Germany to attack Poland and occupy Austria.

(b) **The Aggressive Nationalism of Germany :**

There was an economic crisis in various nations of the world after the First World War and there was large scale food shortage, inflation and unemployment. The democratic governments of Europe were not able to face it effectively and people suffered a lot of hardships. The dictators took advantage of this and offered a programme of aggressive nationalism to build up support for their respective parties.

(c) **The policy of Appeasement :** The Policy of Appeasement means "acceding to hostile demands in order to gain peace". The reasons behind this were that Britain and France believed that the Treaty of Versailles had been too severe to the defeated powers, especially Germany and they thought that if genuine grievances of Germany were removed, they would be satisfied and would not disturb the peace of the world.



GURUKUL

QUESTIONS

(Two Hours)

Answers to this Paper must be written on the answer sheet provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **seven** questions in all.

Part I is compulsory. All questions from **Part I** are to be attempted.

A total of **five** questions are to be attempted from **Part II**.

The intended marks for questions or parts of questions are given in brackets [].

PART-I (30 Marks)

(Attempt **all** questions from **this Part**)

Question 1.

Study the extract of the **Survey of India** Map sheet No. **45D/10** and answer the following questions :

- (a) (i) Give the **six-figure** grid reference for the spot height .324 in northern part of the map extract. [2]
(ii) Give a **four** figure grid reference for open scrub South of Dhad Talao. [2]
- (b) (i) What is the meaning of the term '**Contour interval**'? [2]
(ii) What is the contour interval of the sheet provided to you? [2]
- (c) What is the **area** in **kilometre square** of the region between 06 and 09 Eastings and 22 and 27 Northings? [2]
- (d) What is the significance of the following colours used on the survey map? [2]
(i) Yellow colour
(ii) Green colour
- (e) What is the compass direction of? [2]
(i) Idarla (0825) from Bhamra (0420).
(ii) Dhana (0623) from Amarapura (0124).
- (f) (i) Name the settlement pattern seen in the grid square 0819. [2]
(ii) Name the drainage pattern seen in the grid square 0827. [2]

- (g) (i) Name **two** man made features seen in the grid square 0723. [2]
(ii) Name **two** natural features seen in the grid square 0218. [2]
- (h) (i) What is the black horizontal line drawn between 18 and 19 Northings? [2]
(ii) Name the most important settlement of the region shown on the map extract. [2]
- (i) Draw the conventional symbol for each of the following: [2]
(i) Lined perennial well.
(ii) Seasonal tank
- (j) (i) Give **one** evidence to prove that the regions shown on the map extract receive scanty rainfall. [2]
(ii) What is .5r in the grid square 0321? [2]

Question 2.

On the outline map of India provided :

- (a) Mark and name Nilgiris. [1]
- (b) Mark and name **Kochi**. [1]
- (c) Mark and name the Karakoram Pass. [1]
- (d) Mark and name $82^{\circ}12'E$ Longitude. [1]
- (e) Shade and name the Coromandel Coastal Plain. [1]
- (f) Mark and name the River Brahmaputra. [1]
- (g) Mark and name the Gulf of Kutch. [1]
- (h) Mark and name the Satpura. [1]
- (i) Mark using arrows, the direction of the South West Monsoon wind during summer over the Arabian sea and label it. [1]
- (j) Shade and label a sparsely populated region in India. [1]

PART-II (50 Marks)

(Attempt **any five** questions from **this Part**)

Question 3.

- (a) (i) Name one state in the north western part of India that receives rainfall during winter. [2]
(ii) What is the source of this rainfall? [2]
- (b) Give a reason for each of the following: [2]
(i) Rainy season in India is after the summer season.
(ii) Tamil Nadu has more rainy months than Kerala, yet, Kerala receives more rainfall than Tamil Nadu.
- (c) (i) What do you understand by the term "Burst of Monsoon"? Name the state that experiences the "Burst of Monsoon". [3]

(ii) Even though India gets abundant rainfall during the rainy season, yet, some places experience drought. Explain giving suitable examples.

(iii) Why is Shimla colder than Delhi during summer?

- (d) Study the climatic data given below and answer the questions that follow: [3]

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 8.4 | 11.5 | 21.6 | 28.3 | 35.1 | 38.5 | 41.0 | 38.0 | 30.0 | 29.2 | 15.6 | 10.2 |
| Rainfall cm | 1.5 | 0.9 | 0.5 | - | - | 12.5 | 17.8 | 18.5 | 12.5 | 12.5 | 6.2 | 2.1 |

(i) Calculate the annual range of temperature.

(ii) State whether the station is located in the coastal area or in the continental interior.

(iii) Name the wind that brings most of the rainfall to this area.

Question 4.

- (a) (i) Name the parent rock that contributes to the formation of red soil. [2]
 (ii) How does this soil get its 'red' colour? [2]
- (b) Name the following : [2]
 (i) a soil that occurs insitu and is good for cotton crop.
 (ii) Soil that is formed due to high temperature and heavy rainfall.
- (c) With reference to Alluvial Soil answer the following: [3]
 (i) What are the **two types** of Alluvial Soil?
 (ii) Name an area where Alluvial soil is found.
 (iii) Name **two crops** that grow well in this soil.
- (d) (i) Define the term 'Residual' soil. [3]
 (ii) Name **two crops** that are grown on laterite soil.
 (iii) Name **two important agents of soil erosion**.

Question 5.

- (a) State two ways by which forests help in protecting the environment. [2]
- (b) With reference to Tropical Deciduous forests answer the following questions: [2]
 (i) Name two states where it is found.
 (ii) Name two important trees found in this forest.
- (c) Briefly explain the following: [3]
 (i) Why are Tropical Evergreen forests called "Evergreen"?
 (ii) Why is afforestation essential in the cities that have Iron and Steel industries?
 (iii) How do forests act as a source of income for the people.
- (d) Give a reason for each of the following: [3]
 (i) The Tropical Deciduous forests is commercially the most important forest belt in India.

(ii) Tropical Evergreen forests occur on the windward side of Western Ghats.

(iii) It is very difficult to move through tidal forests.

Question 6.

- (a) Mention any two methods of recharging ground water aquifers. [2]
- (b) (i) Name the most common means of irrigation used in India. [2]
 (ii) Give one reason for the popularity of this means of irrigation in our country.
- (c) (i) Name two states of India where Canal irrigation is extensively used. [3]
 (ii) Name the types of canals used in India.
 (iii) Mention one point of difference between the types of canals mentioned by you.
- (d) (i) What geographical conditions make irrigation necessary in the country? [3]
 (ii) How has irrigation changed the cropping pattern in India?
 (iii) Why is there a scarcity of surface water in our country

Question 7.

- (a) (i) Why is iron ore called the back bone of our modern industry? [2]
 (ii) Mention two uses of iron ore.
- (b) Mention one agricultural and one industrial problem solved by the Bhakra Nangal Dam. [2]
- (c) (i) Name the state that is the leading producer of Manganese. [3]
 (ii) Name the mineral of oil fields of India which is the largest producer of Petroleum.
 (iii) Mention two advantages of using Geothermal energy over coal.
- (d) (i) Mention one disadvantage of using natural gas as a source of power. [3]
 (ii) How is the residue from a Bio-gas plant put to use?
 (iii) Why is the use of alternative sources of energy becoming essential in modern time?

Question 8.

- (a) Mention **two points** of difference between subsistence farming and commercial farming. [2]
- (b) Explain briefly the following terms: [2]
 (i) Ginning
 (ii) Ratooning.
- (c) With reference to the wheat crop answer the following questions: [3]
 (i) Name the state which is the leading producer of this crop in India.
 (ii) Mention the climatic condition found suitable for the cultivation of this crop.

(d) Give a geographical reason for each of the following :

- (i) Cultivation of rice requires flat level land. [3]
- (ii) Pulses are important rotation crops.
- (iii) Bajra and Jowar are grown as dry crops.

Question 9.

- (a) Give two reasons as to why Mumbai has developed into an important cotton textile centre. [2]
- (b) (i) What are Basic Industries? [2]
- (ii) Give one example of a Basic Industry in India.
- (c) (i) State two problems faced by the Silk Industry of India. [3]
- (ii) Mention the most important factor for location of Sugar industries.
- (d) Briefly answer the following: [3]
- (i) From where does the Rourkela Steel Plant obtain its supply of coal?
- (ii) From where does the Tata Iron and Steel Plant obtain its supply of iron ore?
- (iii) Name two cities that are important for the production of Electronics.

Question 10.

- (a) With reference to **Waterways** answer the following questions: [2]
- (i) Mention two advantages of inland water transport.
- (ii) Why is inland water transport not well developed in India?

(b) Even though all means of transport are well developed in India, yet, road transport remains the most popular means of transport. Justify this statement. [2]

(c) Give a reason for each of the following : [3]

- (i) Roadways is not well developed in North East India.
- (ii) Railways are under the public sector.
- (iii) A good network of transport is of great help for the development of the economy.

(d) (i) Give two disadvantages of airways traffic in recent years? [3]

(ii) Why is there an increase of airway traffic in recent years?

Question 11.

(a) (i) What do you mean by segregation of waste? [2]

(ii) Why is segregation of waste essential before its disposal?

(b) Why should sewage be treated before disposal? [2]

(c) Briefly answer each of the following: [3]

(i) What is the effect of waste accumulation on terrestrial life?

(ii) What are the consequences of water pollution?

(iii) What is the benefit of Composting?

(d) (i) How can recycling of waste help in reducing waste? Explain with suitable examples. [3]

(ii) Mention one initiative taken by the Government to manage waste.

(iii) How can you as an individual contribute towards waste management?

ANSWERS

PART-I

Answer 1.



- (a) (i) 076275
- (ii) 0721
- (b) (i) Contour Interval is the interval of difference between two successive contours. It is also known as vertical interval.
- (ii) Contour Interval is 20
- (c) 15 km²
- (d) (i) Yellow colour represents agricultural land.
- (ii) Green colour signifies dense mixed jungles
- (e) (i) North East
- (ii) North West
- (f) (i) Jolpur
- (ii) Dendritic drainage pattern
- (g) (i) Two man made features seen in grid square 0723 are Huts and well.

(ii) Two natural features seen in grid square 0218 are Sukhi Nadi and dry river bed.

(h) (i) The black horizontal line drawn between 18 and 19 northings is fire line.

(ii) The most important settlement of the region shown on the map extract is ABU.

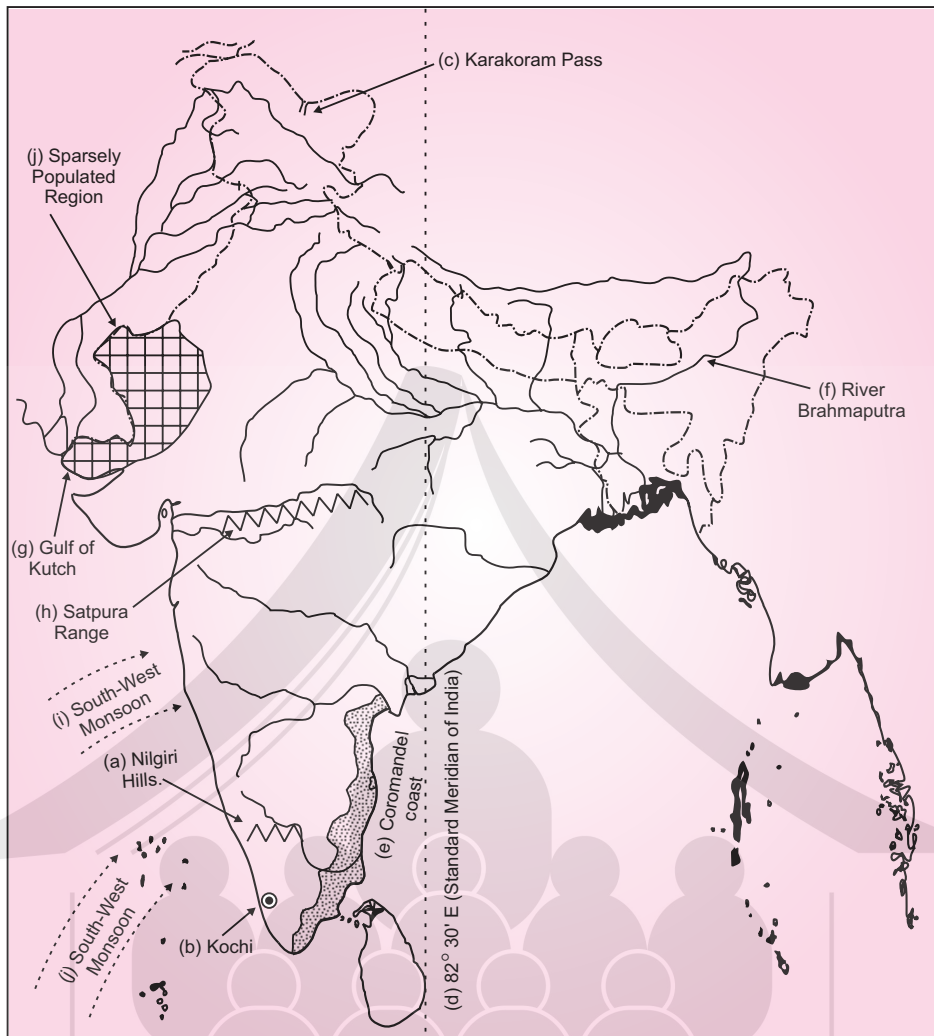
(i) (i) and (ii) Conventional symbols:

| | |
|----------------------|---|
| Perennial lined well |  |
| Seasonal Tank |  |

(j) (i) The region shown on the map extract receives scanty rainfall as this region have abundance of open scrubs.

(ii) Relative height of river is 5 meters.

Answer 2.



PART-II

Answer 3.

(a) (i) Punjab

(ii) Westerly depressions or temperate cyclones is the reason for rainfall.

(b) (i) It is so because the mainland of India experiences extremely high temperature that leads to development of low-pressure trough.

(ii) Because Kerala experiences burst of monsoon and 85% of rain received in Kerala is contributed by monsoon winds.

(c) (i) "Burst of Monsoon" is when the intensity of rain suddenly increases at the arrival of monsoon and it continues for several days.

The state that experiences such situation is Kerala.

(ii) This condition happens because monsoon winds are highly unpredictable. It also varies direction and moisture for example average annual rainfall received in Jaipur is 30 cm and in Bhopal is 140 cm.

(iii) The key factor behind this phenomenon is higher altitude. We know as the height increases, temperature decreases.

(d) (i) Annual range of temperature (max. temperature – min. temperature) $41 - 8.4 = 32.6^{\circ}\text{C}$.

(ii) The station is located in continental interior.

(iii) South-West monsoon.

Answer 4.

(a) (i) Acid granites and gneisses.

(ii) Because this soil is composed of high iron content. Gradually, this iron gets oxidized giving red colour.

(b) (i) Black soil.

(ii) Laterite soil.

(c) (i) The two types of Alluvial soil are young khadar soil and old bhangar soil.

(ii) Alluvial soil is found mainly in riverine plains of North India and deltaic coastal strip of eastern coastal plains.

(iii) Alluvial soil is ideal for the production of wheat and sugarcane.

- (d) (i) Residual soil means those which are formed due to insitu weathering of the parent rock.
 (ii) Laterite soil is suitable for plantation crops like rubber and coffee.
 (iii) Two important agents of soil erosion are wind and running water.

Answer 5.

- (a) (i) The two ways are:
- Forests prevent soil erosion.
 - They provide habitat to a variety of flora and fauna.
- (b) (i) Tropical Deciduous forests are found in Madhya Pradesh and Odisha.
 (ii) Sal and teak.
- (c) (i) Because they do not shed their leaves at the same time and thus appear green always.
 (ii) Because trees provide clean environment as they take carbon dioxide and provide the surroundings with oxygen.
 (iii) Forests provide useful timber, medicinal plants and many other products which have very high market value.
- (d) (i) Tropical Deciduous forests yield valuable timber and other products. Species like teak, sal, sandalwood, eucalyptus have very high commercial value.
 (ii) It is so because windward side of Western Ghats receives very high amount of rainfall (more than 400 cms).
 (iii) It is so because tidal forests are very dense, having deep roots and are found in marshy areas.

Answer 6.

- (a) Groundwater aquifers can be recharged through flooding and check dam method.
- (b) (i) Canal irrigation
 (ii) Canal irrigation is cheaper in long run.
- (c) (i) Punjab and Haryana.
 (ii) There are two types of canals used in India: Inundation and Perennial Canals.
 (iii) Inundation canals are taken out from the rivers when they are in floods. But perennial canals are useful throughout the year as they are taken out from the perennial rivers.
- (d) (i) The uneven and uncertain distribution of rainfall in India makes irrigation necessary because farmers cannot survive on rainwater.
 (ii) Many farmers because of the increased availability of water have switched over to the cultivation of water intensive commercial crops such as jute, cotton and sugarcane, rather than food grains such as bajra, wheat and ragi.

- (iii) Surface water gets lost through the process of evaporation, plant transpiration and water sewage.

Answer 7.

- (a) (i) It is so because it provides raw material to run many other industries.
 (ii) Iron ore is used in making pig iron, sponge iron and steel.
- (b) Bhakra Nangal Dam solved the agricultural problem of flooding and soil erosion. By providing regular electricity supply, it solved the power crisis for industries.
- (c) (i) Odisha
 (ii) Bombay High
 (iii) Geothermal energy is renewable source of energy but coal is limited or non-renewable source. Geothermal fuel does not produce any emission but coal emits carbon dioxide.
- (d) (i) Natural gas as a source of energy cannot be used at a large scale.
 (ii) The residue from a Bio gas plant can be used as manure or fertilizer for plants.
 (iii) Alternative sources of energy are needed because the ever-growing demand for energy cannot be met by conventional sources of energy.

Answer 8.

| (a) | Subsistence Farming | Commercial Farming |
|-----|--|---|
| | 1. Crops are grown for own consumption | 1. crops are grown for market purpose |
| | 2. No use of modern farming inputs and is mainly labour intensive. | 2. High use of modern farming inputs and is mainly capital intensive. |

- (b) (i) The process of removal of unwanted debris and seeds of the cotton plant is known as Ginning.
 (ii) It is a process in which the lower part of the stem is left intact in soil, which later on begins to grow again. This is called as ratooning.
- (c) (i) Punjab
 (ii) Wheat is a rabi crop which requires a temperature between 10°C to 15°C degree at the time of sowing.
- (d) (i) It is so because rice plant needs a lot of moisture i.e., wet land. The flat land does not allow the water to flow away, thus retaining the moisture content.
 (ii) Since pulses are leguminous crops, fixing the atmospheric nitrogen and enhancing the fertility of the soil.
 (iii) Bajra and jowar are rainfed crops of dry farming areas where irrigation is not much required.

Answer 9.

- (a) (1) Mumbai's location as an international port helps in import and export.
 (2) Humid climate of Mumbai is ideal for this industry.
- (b) (i) Basic industries are those industries which supply their products(semi-finished) to manufacture other goods.
 (ii) Iron and steel Industry
- (c) (i) Two problems faced by silk industry of India are:
 1. Tough competition with international markets of Italy and Japan.
 2. Lack of power supplies and storage facilities.
 (ii) Most deciding factor for location of sugar industry is its main raw material *i.e.* sugarcane. Sugarcane is a heavy and perishable material and has to be crushed within 24 hours.
- (d) (i) Rourkela Steel Plant obtains its coal from Jharia (Jharkhand), Talcher (Odisha) and Korba (Chhattisgarh) Coalfields.
 (ii) Tata Iron and Steel Plant obtains its iron ore from Singhbhum (Jharkhand) and Mayurbhanj (Odisha).
 (iii) Bengaluru and Hyderabad are important for the production of Electronics.

Answer 10.

- (a) (i) Two advantages of inland water transport are:
 1. Inland water transport is considered as cheapest mean of transport for both passenger and cargo traffic.
 2. Inland water transport consumes very less energy as compared to other means of transport.
 (ii) Because the seasonal variation in the volume of water, due to monsoon rain, affects the navigability of rivers.
- (b) Undoubtedly, the road transportation is very common in India because:
 1. Roadways feed other modes of transportation.
 2. Roads provide door to door facilities.
 3. Even the remote areas of deserts or mountains can be accessible through road network.
- (c) (i) Because north-eastern part of India has geographically unfavourable conditions to support road network. This region mainly consists of hilly terrain, huge rainfall and thick forest cover.
 (ii) Railways help in administration of our country. It helps in easy movement of heavy defense equipments, troops, police and military within the country.

(iii) A good transport network helps in boosting the agriculture and industrial sector. A good transport network is the basis to develop national and international trade.

- (d) (i) Two disadvantages of airways are:

1. Airways are among the mode source of transportation.
2. Aircrafts cannot carry bulky equipments and goods.

(ii) Despite its exorbitant price, air travel has been gaining popularity in recent years as airways are fast, comfortable and time saving.

Answer 11.

- (a) (i) Segregation of waste means waste from residential or commercial sources must be divided into biodegradable and non-biodegradable waste.
 (ii) It is very important otherwise the unsegregated waste will be the part of landfills and the whole process of waste management will fail.
- (b) The sewage should be treated before disposal because of the following reasons:
 1. Untreated sewage causes many water related illness like diarrhoea.
 2. The process of eutrophication takes place due to introduction of nutrients and chemicals through discharge of sewage.
- (c) (i) Waste accumulation may cause the following hazards to terrestrial life:
 1. Earthworms and other soil organisms are extremely susceptible to cadmium poisoning.
 2. Contaminated air is responsible for pulmonary changes, oedema and hemorrhage in dogs, cats and rabbits.
 (ii) The consequences of water pollution are:
 1. Water pollution may cause illness like diarrhoea.
 2. Water pollution can cause serious threat to aquatic life.
- (iii) The benefits of composting are:
 1. Conversion of organic waste into valuable fertilizers.
 2. Reduction of the quantity of waste.
- (d) (i) Recycling of waste turns the waste into raw material usable in other useful materials.
 For example recycled paper can be used as in making new paper and box board and bagasse (residue of sugarcane) is used for manufacturing paper.
 (ii) The Government of India initiated "Swachh Bharat Mission" on 2nd Oct, 2014.
 (iii) As an individual we must follow the rule of three R's, *i.e.*, Reduce, reuse and recycle of waste.

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this part)

Question 1.

Study the extract of the **Survey of India** Map Sheet No. 45D/10 and answer the following questions :

- (a) (i) Give the **six-figure** grid reference for the temple that is located to the south-west of Pithapura settlement. [2]
(ii) Give the **four-figure** grid reference for a settlement where people of the region meet socially and for trade at least once in a year.
- (b) (i) What is the pattern of drainage seen in the grid square 2118 ? [2]
(ii) What is the pattern of settlement seen in the grid square 1923 ?
- (c) What do each of the two numbers (281 printed in black colour and 20 printed in red colour) in the grid square 1818 indicate ? [2]
- (d) (i) Name any **two** man-made features in grid square 2419. [2]
(ii) Name any **two** natural features in grid square 2118.
- (e) What is the significance of the following ? [2]
(i) **Fire line** in grid square 2417.
(ii) Water body found in grid square 2221.
- (f) Calculate the **area** of the region between 16 and 19 Eastings and 18 and 22 Northings. Give your answer in **kilometre square**. [2]
- (g) Give a reason for each of the following : [2]
(i) The water in some of the wells in the north-west quarter of the map is **not** fit for drinking.
(ii) The region near Anadra and Gulabganj has many causeways.
- (h) (i) What is the main means of irrigation used by people living in the area shown on the map ?
(ii) What is the main occupation of the people of the region shown on the map ? [2]
- (i) Which according to you is the most important settlement ? Give a reason to support your answer. [2]
- (j) Name any two means of transport used by the people living in the area shown on the map extract. [2]

Question 2.

On the outline map of India provided :

- (a) Shade and label the Gangetic Plain. [1]
- (b) Shade and label an area of laterite soil in North India. [1]
- (c) Mark and label the Karakoram Mountains. [1]
- (d) Mark and name the Palk Strait [1]
- (e) Shade and label the river Cauveri. [1]
- (f) Mark and name Mumbai. [1]
- (g) Mark and name the Nathu La Pass. [1]
- (h) Mark and name Digboi. [1]
- (i) Shade and name the Deccan Plateau. [1]
- (j) Shade and label the river Jhelum. [1]

PART-II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) (i) What type of wind is 'Monsoon' ? What is its direction during summer ?
(ii) Mention two characteristics of the Indian monsoon. [2]
- (b) With reference to the summer season in India, answer the following questions : [2]
(i) Mention the duration of the summer season in India.
(ii) What is the atmospheric pressure condition during summer season over the central part of India ?
- (c) Give a reason for each of the following : [3]
(i) Goa receives heavier rainfall than Puducherry.
(ii) Mawsynram receives the highest average annual rainfall.
(iii) Mangaluru is cooler than Delhi in summer season.
- (d) Study the data of distribution of temperature and rain for Station X and answer the questions that follow : [3]

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|-----|------|------|------|-------|------|------|------|
| Temp. °C | 10 | 11 | 23 | 35 | 39 | 42 | 40 | 33 | 30 | 25 | 13 | 11 |
| Rainfall cm | 2 | 1 | 0 | 5 | 15 | 62 | 71 | 81 | 59 | 12 | 10 | 3 |

- (i) Is Station X in the coastal area **or** in the interior of the country ?
- (ii) Calculate the total annual rainfall for Station X.
- (iii) Name the wind that brings **most** of the rainfall to Station X.

Question 4.

- (a) (i) Name the Indian soil which is formed due to the weathering of basic igneous rocks. [2]
- (ii) Name two states of India where this type of soil is found.
- (b) Name the following : [2]
- (i) An important transported soil of India.
- (ii) Soil that is rich in iron oxide.
- (c) Give a geographical reason for each of the following : [3]
- (i) Terrace farming is an ideal soil conservation method for hilly regions.
- (ii) Dry farming is preferred in areas with red soil.
- (iii) Wind is a common agent of soil erosion in arid regions.
- (d) Briefly answer the following : [3]
- (i) Mention one way in which man is responsible for soil erosion.
- (ii) How can deepening of the river bed help in preventing soil erosion ?
- (iii) Mention a physical characteristic of Laterite soil.

Question 5.

- (a) Give **two reasons** to explain as to why we need to conserve our forest resource. [2]
- (b) (i) Mention two conditions required for the growth of Littoral Forest. [2]
- (ii) State **one characteristic** feature of the forest found in the Nilgiri Hills.
- (c) (i) Give **two reasons** to explain as to why the Tropical Evergreen Forests are difficult to exploit for commercial purpose. [3]
- (ii) Name any **two trees** found in Tropical Evergreen Forests.
- (d) Briefly explain each of the following : [3]
- (i) The trees in the Tropical Desert Forest have stunted growth.
- (ii) There is a gradual increase in the forest cover in India in recent times.
- (iii) The trees in Monsoon Deciduous Forests, shed their leaves for about 6-8 weeks during March and April.

Question 6.

- (a) "The modern means of irrigation are gaining popularity."
Give **two reasons** to justify this statement. [2]
- (b) Mention **two factors** that favour the development of tube well irrigation in Punjab. [2]

- (c) Give a reason for each of the following : [3]

- (i) Most of the South Indian states are **not suitable** for development of canal irrigation.
- (ii) There is an urgent need for water conservation in India.
- (iii) Development of irrigation is essential for the growth of the agriculture sector of India.
- (d) Briefly explain the following terms : [3]
- (i) Inundation canal.
- (ii) Rooftop rainwater harvesting.
- (iii) Surface water.

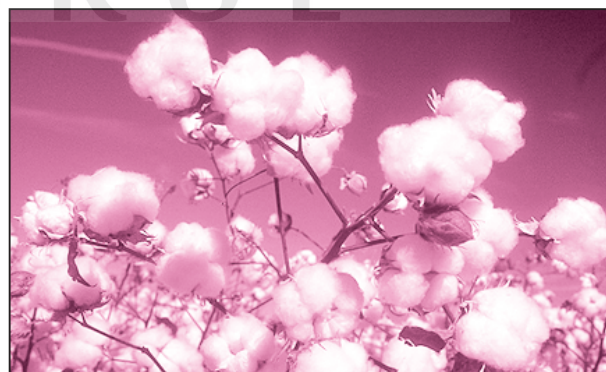
Question 7.

- (a) Give **two advantages** of using biogas as a source of power. [2]
- (b) Name the following : [2]
- (i) A **metallic mineral** for which the Balaghat district of Madhya Pradesh is famous.
- (ii) The multi-purpose project based on the River Sutlej.
- (c) Give a reason for each of the following : [3]
- (i) **Odisha** has benefitted greatly from the **Hirakud project**.
- (ii) Copper is used to make **electric wires**.
- (iii) India's location is advantageous for the generation of **solar power**.
- (d) Briefly answer the following : [3]

- (i) Name a mineral used to generate nuclear power.
- (ii) Why is petroleum often referred to as "**liquid gold**" ?
- (iii) State **one disadvantage** of using coal as a source of power.

Question 8.

- (a) Mention **two steps** taken by the government to boost agricultural production in India. [2]
- (b) (i) Name two varieties of millet grown in India. [2]
- (ii) What is the soil requirement for growing millet ?
- (c) Study the picture given below and answer the questions that follow : [3]



- (i) Mention the climatic condition that is suitable for the cultivation of this crop.

- (ii) Name the state that produces the largest amount of this crop.
- (iii) In which cropping season is this crop grown in India ?
- (d) Give a geographical reason for each of the following: [3]
- (i) Cultivation of wheat is confined to the northern part of India.
- (ii) Practicing mixed farming gives security to farmers.
- (iii) Ratoon cropping is gaining popularity among sugarcane cultivators.
- Question 9.**
- (a) Where do the following iron and steel plants get their supply of **iron ore** from ? [2]
- (i) Bhilai Iron and Steel Plant.
- (ii) Vishakhapatnam Steel Plant.
- (b) 'Karnataka has developed as an important state for the growth of the Silk industry'. Give **two reasons** to justify the statement. [2]
- (c) With reference to **sugar industries** answer the following questions : [3]
- (i) Why should these industries be located close to the sugarcane growing areas ?
- (ii) Name **two** by-products of the sugar industry.
- (iii) Mention **one** leading sugar producing state in North India and **one** in South India.
- (d) Give a reason for each of the following : [3]
- (i) **Ahmedabad** is an important cotton textile producing centre in India.
- (ii) Cottage industries are significant for our economy.
- (iii) Petrochemical industries are usually located close to the oil refineries.
- Question 10.**
- (a) "Roadways are an important means of transport in India." Give **two reasons** to justify the statement. [2]
- (b) (i) Why are South Indian rivers **not ideal** for the inland water transport ? [2]
- (ii) Mention **one** advantage of coastal shipping.
- (c) Give a reason for each of the following : [3]
- (i) Nearly seventy per cent of Indians do not use air transport.
- (ii) A well-developed transport network is important for industrial growth.
- (iii) Water transport is not as popular as land transport in India.
- (d) (i) "The railways is an important means of transport as compared to airways." State two reasons to support the statement. [3]
- (ii) Mention one disadvantage of rail transport.
- Question 11.**
- (a) What impact does the waste accumulation have on the following ? [2]
- (i) Quality of air around us.
- (ii) Quality of water around us.
- (b) Mention **two ways** in which the decomposition of waste in open areas can affect human health. [2]
- (c) (i) What can an individual do to reduce waste at home? [3]
- (ii) Why must segregation of waste be done before disposal ?
- (iii) How has composting proven to be great help in managing waste ?
- (d) Give a reason for each of the following : [3]
- (i) Trees must be planted in the industrial areas.
- (ii) Chemical fertilizers must be replaced by organic manure.
- (iii) Plastic and polythene products must be banned.

ANSWERS

PART-I

Answer 1.

- (a) (i) 201215/202215
- (ii) Village Pamera 1622 or Village Malgaon 1520.
- (b) (i) Radial
- (ii) Nucleated or clustered.
- (c) 281 in Black → Spot height
- 20 in Red → Milestone
- (d) (i) Cart track, lined perennial well, houses.
- (ii) Seasonal streams, hill Bhuni Magri.
- (e) (i) Fire line → A clearing made in the forest to prevent the spread of fire.

(ii) It is the Tokra reservoir/Talao which provides the supply of water for domestic as well as agricultural use.

- (f) Distance on the map between eastings 16 to 19 = 6 cm.

Distance on the map between northings 18 to 22 = 8 cm.

As per the scale, 2 cm on the map is equal to 1 km on the ground.

6 cm on the map is equal to 1 km on the ground

$$\frac{1}{2} \times 6 = 3 \text{ km}$$

8 cm on the map is equal to 1 km on the ground

$$\frac{1}{2} \times 8 = 4 \text{ km}$$

$$\text{Area} = 3 \text{ km} \times 4 \text{ km}$$

$$= 12 \text{ sq km.}$$

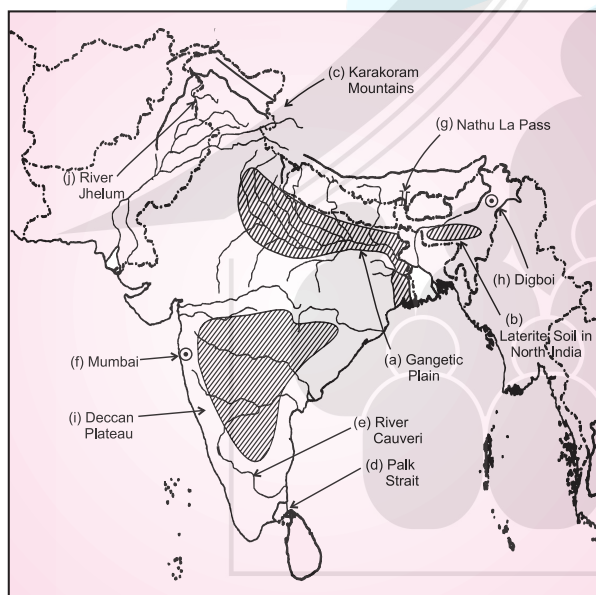
- (g) (i) The water in the wells in the north-west quarter of the map is brackish. Meaning that the water in these wells is salty. Thus, it is not suitable for drinking.

(ii) Area between Gulabganj and Anadra is a region of scanty rainfall with a number of seasonal streams. So, elevated roads across minor streams are possible—leading to the region having many causeways.

Natural—River, dry stream.

- (h) (i) Canal and lined perennial well.
(ii) Agriculture.
- (i) Anadra is the most important settlement as it has a post and telegraph office, Dak-Bungalow, police chowki and dispensary.
- (j) Metalled Roads and Cart tracks.

Answer 2.



PART-II

Answer 3.

- (a) (i) Monsoon wind is a periodic wind. Its direction during summer is south-west to north-east.
(ii) The characteristics of Indian monsoon are :
1. South-West monsoon is erratic in nature.
 2. Distribution of rainfall is uneven.
 3. It is largely controlled by orography *i.e.*, the effects caused due to the presence of Himalayas and the Western Ghats on the amount of rainfall.
- (b) (i) The summer season or hot dry season in India commences in March and continues till the end of May.
(ii) During the summer season as the whole country simmers in heat, the low pressure

conditions over the central part of India become more severe and a low pressure trough develops between Thar Desert and the Chotanagpur Plateau.

- (c) (i) Goa is located on the windward side of the Western Ghats so the Arabian Sea Branch of SW monsoon brings heavier rainfall while Puducherry is located on the eastern coast and gets lighter rainfall from North East monsoon.

(ii) Mawsynram receives orographic rainfall as it is situated along the edge of the Meghalaya Plateau and stands at the end of a funnel-shaped valley, on the windward side of the Khasi hills which acts as a trap for the rain-bearing Bay of Bengal branch of the SW monsoon forcing them to shed huge amounts of moisture.

(iii) Mangaluru is situated on the western coast and thus, enjoys the influence of the sea and stays relatively cooler. On the other hand, Delhi lies in the interior and experiences continental type of climate. So, summers in Delhi are very hot.

- (d) (i) Station X is situated in the interior parts of the country.

(ii) 321 cm.

(iii) SW monsoon winds.

Answer 4.

- (a) (i) Black soil.
(ii) Maharashtra and Gujarat.
- (b) (i) Alluvial soil.
(ii) Red soil.
- (c) (i) Terraced farming checks erosion as it controls the direct flow of water down the slopes.
(ii) Regions that receive less than 75 cm of rainfall are suitable for dry farming. Red soil is porous so does not retain moisture. So, dry farming is preferred in areas of red soil.
(iii) Arid regions are extensive flat lands with no or few vegetation cover. So, the dry winds are able to erode the upper soil surface which becomes loose due to absence of obstruction.
- (d) (i) Man's activities like construction work, ploughing, cutting down trees, quarrying, mining causes soil erosion.
(ii) Much of the soil erosion by floods can be checked by deepening of the river beds. As deep river beds can stop overflowing of river water or floods and can reduce the speed of the overflowing water. So, it can greatly help in preventing large scale soil erosion.
(iii) Heavy rainfall washes away the top soil containing silica. So, the laterite soil lacks fertility

due to 'leaching'. It is reddish brown in colour due to the presence of iron oxide and it is coarse and porous in nature.

Answer 5.

- (a) The conservation of forest resources is essential for the survival of human beings, wildlife and other species, as forests play an important role in the development of soil and enriching its fertility, conserving water in the subsoil, absorbing insolation, causing rain, maintaining ecological balance, preventing floods and soil erosion.
- (b) (i) Conditions required for the growth of littoral forests are :
1. Delta regions or creeks and estuaries which are prone to tidal influence.
 2. Temperature 26°C to 29°C.
 3. Rainfall over 200 cm.
- (ii) Mountain forests consist of mixed deciduous and coniferous trees in transition zone. The main tree is Eucalyptus. The forests are characterised by giant, multilayered species with luxuriant vegetation. The height of the trees goes up to 150 feet or more supported by huge buttresses.
- (c) (i) Tropical Evergreen Forests are difficult to exploit due to :
1. Dense undergrowth.
 2. Lack of transport facilities.
 3. Absence of trees found in pure stands.
 4. Logs are heavy so, they do not float in the river. Thus, causing the cost of transportation to rise.
- (ii) Rosewood, Ebony, Mahogany, Sisam.
- (d) (i) The trees in the tropical desert forest have stunted growth due to constant wind and scarce water supply.
- (ii) 1. There is gradual increase in the forest cover due to programmes like 'Van Mahotsava' under which all government employees plant trees.
2. Due to Afforestation scheme in which trees are planted in Rajasthan, West U.P. and Kutch region.
 3. Due to Re-afforestation Scheme in which 2 saplings, are planted for every tree that is cut.
- (iii) Trees in monsoon deciduous forests shed their leaves for about 6-8 weeks during March and April to prevent transpiration and to preserve water for the dry months to survive heat and drought condition during autumn, spring early summer.

Answer 6.

- (a) The modern means of irrigation like sprinkler or drip irrigation are by far the best methods for conserving water as :
1. There is no wastage of water due to seepage or evaporation.
 2. High application efficiency.
 3. Labour cost is less.
 4. Prevents water pollution.
- (b) Two reasons for development of tube well irrigation in Punjab are :
1. Soft alluvial soil facilitate digging as deep as required.
 2. Cheap HEP is available to draw water through the tube well.
 3. High water table with perennial water supply.
- (c) (i) Most of the rivers in South India are non-perennial. Deccan Plateau consisting of hard igneous and metamorphic rocks making it difficult to dig. So, states in South India are not suitable for canal irrigation.
- (ii) As fresh water resources such as rivers, lakes and ponds are drying up due to excessive use and climate change. Industrial development is leading to the pollution of fresh water bodies like lakes, river and ponds. Thus, with rising water scarcity and growing population there is an urgent need to conserve water in India for the future generations.
- (iii) Only 30% of the cultivated area receives sufficient annual rainfall while 40% receives less than 75 cm of annual rainfall.
1. Rabi crops need irrigation as most parts of India receives no rain during winter.
 2. Some crops like rice, jute, sugarcane need more water. So, India needs enhanced irrigation facilities to get maximum yield from the same land.
- (d) (i) Inundation canals are taken out from perennial rivers without any regulating systems like weirs and barrages at their head to regulate the flow of river. The supply of water comes only when the river is flooded in the lower level regions only. This type of irrigation is cheap and can also be useful in controlling floods.
- (ii) Rooftop rainwater harvesting is the technique through which rainwater is captured from the roof catchments and stored in reservoirs. This harvested rainwater can be stored in sub-surface groundwater reservoirs by adopting artificial

recharge techniques to meet the household needs through storage tanks.

(iii) Surface water is available on the surface of the earth in the form of rivers, lakes, ponds and canals. Rivers comprise of the most important source of surface water. Most of the Himalayan rivers are perennial while the rivers of the Peninsular India are seasonal.

Answer 7.

(a) Biogas energy uses organic material and waste like agricultural waste and household waste for its production. So, it is a sustainable source of energy. Its usage as a source of power has many advantages such as :

1. The process emits far less greenhouse gases into the air than in fossil fuels.
2. It is cost effective.
3. It saves about 70 lakh tons of fuelwood and reduces dependence on fossil fuels.

(b) (i) Copper.

(ii) Bhakra Nangal Project.

(c) (i) Odisha has benefitted greatly from the Hirakud project as the canals originating from the dam helps irrigate vast areas of agricultural land. The project also provides navigation facilities for the transportation of goods. The project also has two power houses, Chiplima power house and Hirakud power house which supply power to a number of industries thus, making a valuable contribution to the industrial development of Odisha as it is very rich in mineral resources like iron, bauxite, manganese, etc.

(ii) Copper is a good electrical conductor. So, it is used in the electrical industry mainly to make copper wires.

(iii) India lies between 8°N and 37°N with the Tropic of Cancer running through it and so receives a lot of sunlight with 300 clear days in a year. Thus, India's location is advantageous for the generation of solar power.

(d) (i) Uranium/Plutonium/Beryllium/Thorium.

(ii) Petroleum, is a fossil fuel, can be extracted easily at a low cost, sold at a cheaper cost compared to other sources of energy. It can generate up to 10,000 kilo calories of energy. It can be easily transported. So, it is known as liquid gold. Used as raw material for various products.

(iii) Using coal as a source of power requires burning it. Burning coal emits harmful waste like carbon dioxide, sulphuric acid, arsenic, ash,

nitrogen oxide and sulphur dioxide, increasing greenhouse gases into the atmosphere. It may also cause acid rain. Thus, causing severe harm to our environment.

Answer 8.

(a) Two steps are :

1. Use of HYV seeds (High Yielding Variety seeds).
2. Rural electrification.
3. Supply of agricultural credit.
4. land reforms law.
5. Irrigation facilities.
6. Opening of agricultural universities.

(b) (i) Jowar/Bajra/Ragi are some of the millets grown in India.

(ii) Millets do not have any special requirement as far as soil is concerned. Loamy, sandy, clayey deep regur and alluvial soils are best for growing millets.

(c) (i) The temperature should be in between 18°C to 32°C and should not be less than 20°C. The rainfall should be between 50 cm-80 cm and should be well distributed as stagnant water and excessive rain can be harmful to the plant.

The cotton crop needs 200 frost free days during the period of growth.

(ii) Maharashtra/Gujarat.

(iii) In North India, it is a Rabi crop but in South India, it is Kharif crop.

(d) (i) Wheat grows well in a cool climate with 50 cm to 100 cm of rainfall during the growing season. It needs an average temperature of 10°C-15°C at the time of sowing and 20°C-25°C during the harvesting period. North India enjoys this type of climate, whereas South India does not. So, wheat cultivation is confined to North India only.

(ii) Cultivation of crops and rearing of livestock is done simultaneously in mixed farming. If crop fails, the farmers get income from the livestock. So, this gives security to the farmers.

(iii) Ratoon cropping does not involve any extra expenditure for replanting the crop. It involves shorter maturation period. So, it is gaining popularity among sugarcane cultivators.

Answer 9.

(a) (i) Bhilai Iron and Steel Plant gets iron ore from Dalli-Rajhara Range.

(ii) Vishakhapatnam steel plant gets iron ore from Bailadila mines in Chhattisgarh.

(b) Karnataka has developed as an important state for the growth of the silk industry for the following reasons :

1. Availability of favourable climate for rearing of silkworms throughout the year.
2. Availability of mulberry plant which is raised as plantation bush.
3. Availability of soft water.

(c) (i) Sugarcane needs to be crushed within 24 to 48 hrs, otherwise, the sucrose content is reduced. So, the sugar industry should be located close to the sugarcane growing areas.

(ii) Molasses, Bagasses, Press mud.

(iii) North India → UP/Punjab/Bihar/Haryana.
South India → Maharashtra/Karnataka/
Tamilnadu.

(d) (i) Ahmedabad is located right in the centre of the cotton producing area. It enjoys humid climate which is ideal for cotton thread. It provides a huge ready market for cheaper cloth among the poor masses of India. It also has an advantage of both Kandla (free trade zone) and Mumbai port for export and import. So, Ahmedabad is an important cotton textile centre.

(ii) Cottage industries are significant for our economy in the following ways :

1. Cottage industries provide employment to a large number of people in India.
2. It also helps India to earn considerable amount of foreign exchange.
3. It also stops rural to urban migration.

(iii) Petrochemical industry gets its raw materials from the oil refineries. So, they are located close to the oil refineries.

Answer 10.

(a) Roadways are an important means of transport in India because :

1. Road construction can be undertaken in remote areas, difficult terrains, high altitudes and steep slopes.
2. Road transport provides door to door service. So, the cost of transport is reduced.
3. It provides a link between the railways and the ports.
4. For perishable commodities like fruits and vegetables, road transport is the best means.

(b) (i) Rivers in South India flow in rocky areas and have an irregular terrain with a number of waterfalls and sharp bends. So, the rivers are not suitable for inland water transport.

(ii) Coastal shipping is the most economical and environment friendly mode of transport as compared to railways and airways as it saves fuel, reduces the burden on rail and road transport systems and provides employment to thousands of people cause less pollution.

(c) (i) Air transport is very expensive. It tends to serve only a particular sector who can afford the exorbitant fares. These fares are normally beyond the reach of the common man. Thus, 70% of Indians can not afford it.

(ii) Transport links consumption to production and hinterland to the production centres. It also links the country with rest of the world. Thus, a well-developed transport network is important for the overall industrial growth of the country.

(iii) Water transport is a very slow means of transport as compared to land transport. In India there is always a chance of failure of monsoon which may result into a fall of water level in the rivers making navigation difficult whereas, land transport does not face any such seasonal difficulties. Water transport is more risky as compared to land transport because there is always a danger of sinking ships or boats. Thus it is not as popular as land transport in India.

(d) (i) Rail transport is the cheapest mode of transport for bulky products like food grain, minerals, heavy defence equipments, etc. whereas, air transport is expensive for both passenger and freight. Rail transport helps to link the rural India with the urban cities, on the other hand air transport links only the major cities of the country to one another. Thus, railways is an important means of transport as compared to airways.

(ii) Railways is unsafe due to poor maintenance, frequent accidents, terror attacks and faulty repairs. Poor management, poor catering and lack of amenities at railway stations have resulted in an inefficient image of the railways in the eyes of the public.

Answer 11.

(a) (i) **Quality of air around us :** Overcrowded urban areas generate excessive waste in form of large piles of garbage. This accumulated waste releases various pollutants into the air. Primary pollutants that are emitted directly into the air include carbon monoxide, sulphur dioxide, nitrogen oxide and SPM which lead to common air hazards such as acid rain, global warming, ozone depletion and smog formation.

- (ii) Quality of water around us :** Industrial plants or manufacturers release various pollutants such as arsenic, lead, mercury in the water bodies which when accumulated pollute the streams, rivers and oceans thereby causing serious health hazards in humans as well as the aquatic life.
- (b)** Decomposition of waste in open areas can affect human health in the following ways :
1. Decomposition of waste in landfills releases various harmful gases such as methane that causes chemical poisoning among humans.
 2. Landfills also attract all types of insects and rodents that spread various diseases.
- (c)** **(i)** 1. Instead of discarding household items, one can reuse the items after repairing and polishing them.
2. Household waste like vegetable peels, garden waste etc. can be reduced by making compost.
 3. Use products which do not generate too much waste, are eco-friendly and biodegradable.
- (ii)** Waste from residential areas, hotels, offices and commercial areas must be segregated into different categories of biodegradable and non-biodegradable wastes for treating, recycling and disposing appropriately.
- (iii)** Composting has proven to be of great help in managing waste as it has lead to :
1. Conversion of organic waste into valuable fertilizers to increase plant growth.
 2. Reduction of the quantity of waste to be disposed off by the householder.
 3. It is a normal waste disposal system and help nutrients get back into the soil.
- (d)** **(i)** Trees must be planted in and around the industrial areas as trees can arrest the pollutants and avoid health hazards of the human and animal population living in and around the industries.
- (ii)** Chemical fertilizers remain in the soil for a long time contaminating the top soil and ground water while the organic manure improves the texture of the soil, aids plant growth and increase the water holding capacity of the soil. Thus, chemical fertilizers must be replaced by organic manure.
- (iii)** Plastic and polythene products must banned because they are non-biodegradable and take hundreds of years to decompose. If these plastics are ingested by animals it can lead to death like cattle and marine life. Plastics also cause clogging of drains, pollute soil and obstruct sewage system, Hence plastics should be banned.

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GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the **Survey of India** Map Sheet No. **45D/7** and answer the following questions :

- (a) Give the six figure grid reference for :
(i) Δ 268
(ii) Temple south-east of Khara
- (b) Name the following :
(i) The **drainage pattern** seen in 9185.
(ii) The **pattern of settlement** seen in 9787.
- (c) What do the following symbols mean ?
(i) **3r** in 9089 (ii) **200** in 9383.
- (d) Name two types of vegetation found in the region east of easting 93.
- (e) Give two evidences which suggest that the rainfall received in the region shown on the map extract is seasonal.
- (f) Calculate the area of the region between 85 – 90 northing and 90 – 95 easting. Give your answer in kilometer.
- (g) Mention any **two** manmade features and **two** natural features in grid square **9080**.
- (h) What is the direct distance in kilometers between the **surveyed** tree west of Rampura (9580) to the **Chhatri** in Juval (9282) ?
- (i) Mention :
(i) The most commonly used means of transport in the area shown on the map extract.
(ii) The main occupation of the people of the region in the southeastern part of the map extract.
- (j) (i) What is the compass direction of Rampura (9580) from Karja (9781) ?
(ii) Identify the landform marked by contours in 9782.
- (f) Shade and label a densely-populated region in India.
- (g) Shade and label a region with Red soil in India.
- (h) Mark with a dot and name Chennai.
- (i) Mark and label the Arabian Sea branch of S.W. Monsoon.
- (j) Mark with a dot and name Singhbhum.

PART-II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) How is the winter rainfall of the **northwest part** of India different from the winter rainfall of the **southeast part** of India ?
- (b) (i) Name a state that is **first** to experience the onset of the monsoon.
(ii) How does the “Mango shower” influence the state of Karnataka ?
- (c) Give a reason for each of the following :
(i) Kanyakumari experiences equable climate.
(ii) Central Maharashtra gets less rainfall than the coastal area of Maharashtra.
(iii) Jaipur has a higher annual range of temperature than Mumbai.
- (d) Write three differences between summer monsoon season and retreating monsoon season.

Question 4.

- (a) (i) Why does alluvial soil differ in texture ?
(ii) State two cash crops that grow well in alluvial soil.
- (b) With reference to **black soil** answer the following :
(i) Name one important crop which grows in this soil.
(ii) Give one chemical property of this soil.
- (c) Give one geographical reason for each of the following :
(i) Red soil requires irrigation.
(ii) Afforestation prevents soil from getting eroded.
(iii) Laterite soil is red in colour.
- (d) (i) What is soil erosion ?
(ii) Mention two causes of soil erosion in India.

Question 5.

- (a) (i) Name an area in India where Tropical Monsoon forest is found.

Question 2.

On the outline map of India provided :

- (a) Shade and label Thar desert.
- (b) Label the river Narmada.
- (c) Shade and name the Wular lake.
- (d) Shade and label Kanara coast.
- (e) Mark and name Mount Kanchenjunga.

- (ii) How is this forest of great commercial value to India ?
- (b) With reference to Littoral forest, answer the following questions : [2]
 (i) Why do the trees in this forest grow aerial roots ?
 (ii) Name one area in India where this forest is found.
- (c) (i) Name a state in India where thorn and scrub forest is found. [3]
 (ii) Give two ways by which the trees that are found here have adapted to the climate.
- (d) (i) Give two ways in which forests are important. [3]
 (ii) Mention one forest conservation method followed in India.
- (b) With reference to **rice** cultivation answer the following : [2]
 (i) Why does the cultivation of rice require a lot of manual labour ?
 (ii) Mention two geographical conditions which suit the cultivation of rice.
- (c) Give a geographical reason for each of the following : [3]
 (i) Cotton is a labour intensive crop.
 (ii) Jute is retted after it has been harvested.
 (iii) The growing of pulses is important in India.
- (d) (i) Why is agriculture important in India ? [3]
 (ii) Name the two main agricultural seasons of India.
 (iii) What is mixed farming ?

Question 6.

- (a) There is plenty of rain in India during the rainy season, yet we need irrigation. Give two reasons to support this statement. [2]
- (b) (i) Name three traditional means of irrigation. [2]
 (ii) Give a reason why traditional means of irrigation are still important in most parts of India.
- (c) (i) Differentiate between Surface water and Ground water. [3]
 (ii) Mention two reasons to explain as to why we are facing water scarcity in recent times.
- (d) (i) What is rainwater harvesting ? [3]
 (ii) What are the advantages of rainwater harvesting ?
 (iii) Name two water harvesting systems practised in India.

Question 7.

- (a) Give two advantages that non-conventional energy sources have over conventional energy sources. [2]
- (b) (i) Mention one advantage of the use of natural gas over coal or petroleum. [2]
 (ii) Name one offshore oil field of India.
- (c) Answer the following : [3]
 (i) State one industrial use of copper.
 (ii) Mention one advantage of generating power from biogas.
 (iii) Name the mineral that toughens steel and makes it rust-proof.
- (d) (i) Name the metal obtained from Bauxite. [3]
 Give any one use of the metal mentioned by you.
 (ii) Which multi-purpose project provides power to both Punjab and Himachal Pradesh ?

Question 8.

- (a) With reference to the cultivation of **tea**, answer the following : [2]
 (i) Why is tea grown on hill slopes ?
 (ii) Why tea bushes have to be pruned at regular intervals ?

Question 9.

- (a) (i) Name the private sector iron and steel plant of India. [2]
 (ii) From where does it get its supply of :
 1. Iron ore 2. Manganese 3. Coal
- (b) Mention any two problems faced by the cotton textile industry of India. [2]
- (c) Give the geographical reason for each of the following: [3]
 (i) Silk industry is doing particularly well in Karnataka.
 (ii) Petrochemical products are gaining popularity in modern times.
 (iii) The electronics industry is proving to be an asset for our country in the field of education.
- (d) Name the following : [3]
 (i) A city most famous for electronics and hence called "The Electronics Capital of India."
 (ii) The location of an iron and steel industry set up with German collaboration.
 (iii) A by-product of sugar industry which is used in the manufacture of wax and shoe polish.

Question 10.

- (a) Give two reasons for the "means of transport" being called the lifelines of a nation's economy. [2]
- (b) Give **two ways** in which rail transport is useful for the people of India. [2]
- (c) (i) State **one advantage** of inland waterways. [3]
 (ii) State **one advantage** of roadways.
 (iii) State **one disadvantage** of water transport.
- (d) Give **three reasons** as to why airways are becoming a popular means of transport in modern India. [3]

Question 11.

- (a) Give two reasons as to why there is a need for safe waste disposal. [2]
- (b) How can waste be reused ? Explain with the help of an example. [2]

- (c) Mention one way in which waste accumulation has an effect on the following : [3]
 (i) aquatic life (ii) terrestrial life
 (iii) landscape
- (d) What do you mean by the following terms ? [3]
 (i) Segregation. (ii) Composting.
 (iii) Dumping.

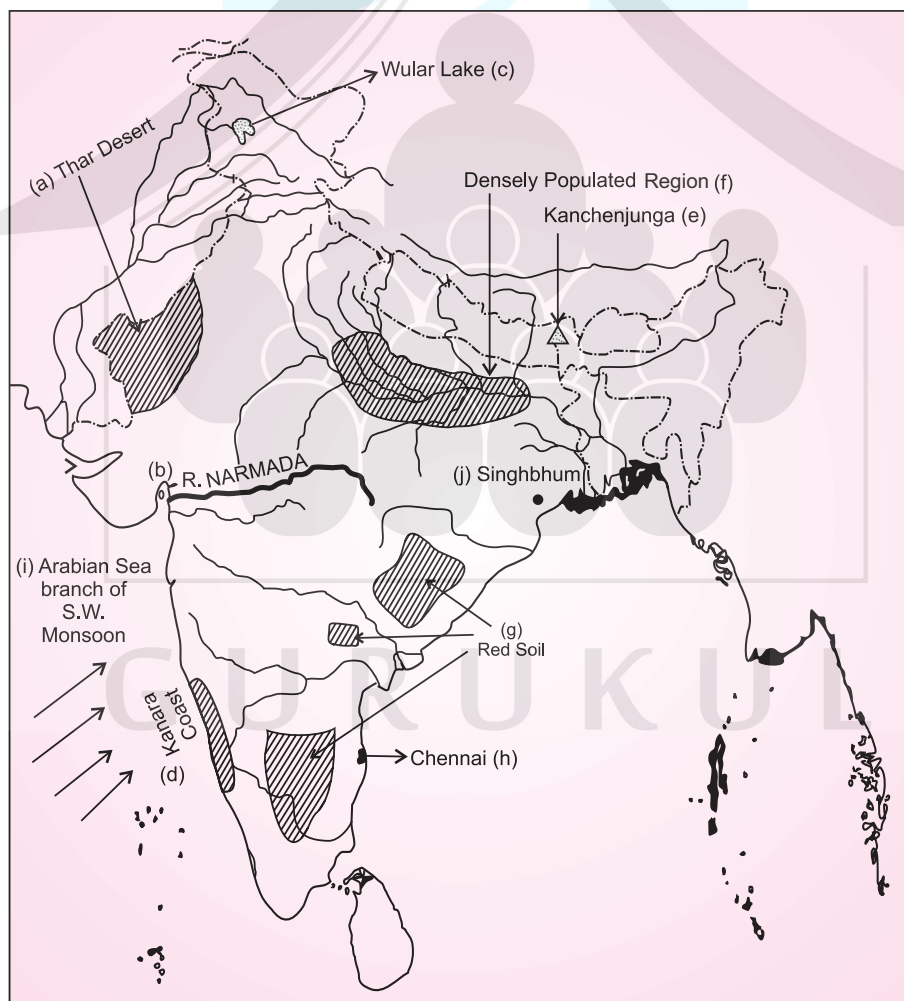
ANSWERS

PART-I

Answer 1.

- (a) (i) 949834 (ii) 969861
 (b) (i) Radial (ii) Dispersed or Scattered
 (c) (i) Relative height of embankment is 3 meters.
 (ii) Value of the contour line is 200 m above mean sea level.
 (d) Dense mixed jungle, open scrub, dense jungle, deciduous trees, open mixed jungle.
 (e) Presence of broken ground, dry stream, dry tank, seasonal streams.
- (f) 25 km²
 (g) Manmade – settlement, cart track, perennial lined well.
 Natural – River, dry stream.
 (h) 3.5 km i.e. 6.5-6.9 cm.
 (i) (i) Cart track.
 (ii) Agriculture, trade, lumbering or forestry, sheep and goat rearing.
 (j) (i) South-west (ii) Escarpment.

Answer 2.



PART-II

Answer 3.

- (a) The winter rainfall of the north-west part of India is different from the winter rainfall of the south-

east part of India as the north-west part of India gets winter rain due to the temperate cyclones whereas the south-east part of India gets rain due to winter monsoon or retreating monsoon.

(b) (i) Kerala

(ii) Mango showers are the name of the local winds that blow in South India, majorly in Karnataka during the month of April/May. These winds bring a little rainfall and are good for the growth & early ripening of the mangoes. Thus, influencing the trade of mangoes as well as of tea and coffee in the state of Karnataka.

(c) (i) Kanyakumari experiences equable climate as it lies in the coastal region of the subcontinent of India and experiences moderating influence of the sea and the land breezes.

(ii) Central Maharashtra gets less rainfall than the coastal area of Maharashtra as it lies in the rain shadow area of the south-west monsoon. Whereas coastal Maharashtra is on the windward side of Western Ghats.

(iii) Jaipur has a higher annual range of temperature than Mumbai because it is an inland city which is situated away from the coastal area. Thus, it is far from the moderating impact of the ocean.

(d)

| Summer Monsoon | Retreating Monsoon |
|---|--|
| (i) Low pressure is over the land. | Low pressure is over the sea. |
| (ii) Winds blows from the sea towards the land. | Winds blows from the land towards the sea. |
| (iii) It brings rain to most parts of India. | It brings rain only in Tamil Nadu and Odisha Coromandel coast. |

Answer 4.

(a) (i) Alluvial soil differs in texture as it is formed by the deposition of rivers and it is composed of pure substances like silica, clay and chalk. Coarse material is deposited in higher altitude areas and fine material is brought to lower plain.

(ii) Sugarcane, Jute.

(b) (i) Cotton.

(ii) It contains high quantity of lime, iron, alumina, potash, calcium and magnesium carbonate and poor quantities of phosphorus nitrogen.

(c) (i) Red soil requires irrigation as it is coarse, porous and crumbly, and its water retaining capacity is less.

(ii) Afforestation prevents soil from getting eroded as the roots of the trees bind the soil, thus preventing soil erosion.

(iii) Laterite soil is red in colour due to the presence of ironoxide.

(d) (i) Removal of the top layer of soil by water, wind and human activities is known as soil erosion.

(ii) Two causes of soil erosion in India are :

1. Running water.
2. Overgrazing.

Answer 5.

(a) (i) Tropical monsoon forests are found on the eastern slopes of Western Ghats, foothills of Himalayas, Shiwalik range and the northeastern part of the Deccan plateau covering parts of Chhattisgarh, Odisha and Jharkhand.

(ii) The tropical monsoon forests provide valuable timber from teak, sal and shisham trees thereby increasing its commercial value to India.

(b) (i) Trees in the littoral forest grow aerial roots as these trees grow in swampy areas. Thus, these roots help the plant to survive in the shifting mud of the coastal region which is affected by tides by acting like respiratory organs.

(ii) Sunderbans in West Bengal.

(c) (i) South-West Punjab.

(ii) Two ways by which the trees in Rajasthan have adapted to the climate are :

1. Trees have long tapering roots.
2. They have thorny branches with small fleshy leaves turning to spines.

(d) (i) Two ways in which forests are important :

1. Forests prevent soil erosion and help in minimising pollution and water percolation.

2. Forests are the moderators of climate, they control humidity, temperature and precipitation.

(ii) Afforestation around industrial units is one forests conservation method followed in India.

Answer 6.

(a) Rainfall in India is uneven, seasonal and unequal. Monsoons cause rainfall only for 3-4 months in a year but for crops to grow, water is required all round the year. Thus, irrigation is needed although India receives plenty of rain during the rainy season.

(b) (i) Wells, Tanks, Canals.

(ii) Traditional means of irrigation are still important in most parts of India as they have low initial cost burden, easy to operate and easily accessible to farmers.

(c) (i)

| Surface water | Ground water |
|--|---|
| Water on land is the result of precipitation or seepage from underground which forms rivers and streams is known as surface water. | Water which gets collected under the surface of the land or groundwater which remains in the soil, subsoil or bedrock is known as ground water. |

(ii) We are facing water scarcity in recent times due to :

- Usage has increased tremendously because of increase in population.
- Increase in industries and factories, the process of their waste management (dumping it in rivers) has also rendered available water useless, thus causing scarcity, demand of pure water is therefore, more than its supply.

(d) (i) Collecting, filtering and storing rainwater for further use; either directly or by recharging it into the ground to improve groundwater storage in the aquifer is known as rainwater harvesting.

(ii) Rainwater harvesting has many advantages like it helps to increase the availability of water during dry season and also to increase the groundwater levels of dried borewells and wells.

(iii) Two water harvesting systems practised in India are :

- Rainwater harvesting.
- Ground water recharge.

Answer 7.

(a) Two advantages of non-conventional energy sources over conventional energy sources are :

(i) Non-conventional energy is renewable and pollution-free whereas, conventional energy sources are non-renewable and cause pollution.

(ii) Non-conventional energy sources are generally inexhaustible whereas, conventional energy sources are usually exhaustible.

(b) (i) One advantage of using natural gas over coal or petroleum is that it causes less damage to environment. It is made up of methane and results in less carbon emission than fossil fuels.

(ii) Mumbai High.

(c) (i) Used for making electrical machinery and for alloys.

(ii) It is clean, non-polluting and cheap.

(iii) Manganese.

(d) (i) Aluminium—It is used to make utensils, aircrafts, in automobiles, shipping industry for making headlight reflectors and mirrors.

(ii) Bhakra Nangal Dam.

Answer 8.

(a) (i) Tea is grown on hill slopes as the roots of tea bushes cannot tolerate stagnant water and the hill slopes drain away the water helping the tea bushes to grow properly.

(ii) Tea bushes have to be pruned at regular intervals to encourage the growth of new leaves and to keep the height of the bushes low for the women who do the plucking of the tea leaves.

(b) (i) Rice cultivation requires many activities to be done manually like sowing seeds, transplanting seedlings in puddled fields, spraying insecticides etc. Therefore, it requires a lot of manual labour.

(ii) Temperature – about 24°C with a range of 16°C to 32°C.

Rainfall – 150-200 cm and flooded fields.

Soil – Alluvial with a subsoil of clay.

(c) (i) Cotton is a labour intensive crop because harvesting is done by hand as it cannot be mechanised. The crop has to be protected against weevils and other insects.

(ii) Jute is retted after it has been harvested so that it becomes soft and it is easy to take out the outer cover.

(iii) Growing of pulses is important in India as they are leguminous plants and help in crop rotation. They can be grown under a diverse climate. They are highly nutritious and vegetarian population is largely dependent on it.

(d) (i) 1. Agriculture is important in India as it provides food for our ever expanding population and fodder for our livestock.

2. It provides employment to millions of people.

(ii) Rabi and Kharif seasons are the two main agricultural seasons of India.

(iii) Cultivation of crops and raising of animals simultaneously is called mixed farming.

Answer 9.

(a) (i) Tata Iron and Steel Company (TISCO).

(ii) 1. Iron Ore—Gorumahisani in Mayurbhanj district of Odisha, Noamundi in Singhbhum, Jharkhand.

2. Manganese—Joda in Keonjhar district.

3. Coal—Jharia and Bokaro.

(b) Problems faced by the cotton textile industry of India :

1. Shortage of raw material.

2. Competition from other countries like Egypt.

(c) (i) Silk industry is doing particularly well in Karnataka as Karnataka has favourable climate for the rearing of silkworms and soft water free from alkaline salt is available.

(ii) Petrochemical products are gaining popularity in modern times as they are economically stable and cheaper as they are produced at mass scale. Raw material is easily available.

(iii) The electronics industry is proving to be an asset for our country in the field of education as all the electronic gadgets *i.e.*, mobile, computers, IWB, laptops, eBooks, etc. are the sources of knowledge for the modern world.

- (d) (i) Bengaluru. (ii) Rourkela Steel Plant.
(iii) Press mud.

Answer 10.

- (a) Two reasons why “means of transport” are called the lifelines of a nation’s economy, are :

(i) It aids in the process of industrialisation and urbanisation.

(ii) It helps in better utilisation of the resources of backward areas by linking them with the more advanced areas.

- (b) Two ways in which rail transport is useful for the people of India are :

(i) Helps in easy movement of heavy goods and perishable commodities to distant places.

(ii) Cheaper and safer than other forms of transport, reduce suffering during natural calamities.

- (c) (i) It is suitable for carrying heavy and bulky material within a particular country or continent.
(ii) It provides door to door service so that every village and hamlet can be reached.
(iii) It is majorly affected by weather conditions.

- (d) Reasons as to why airways are becoming a popular means of transport in modern India are :
(i) Airways is the fastest and most comfortable mode of transport.

(ii) It is helpful during natural calamities.

(iii) The speed and ease with which aeroplanes cross mountains, sandy desert, water bodies and forests make the air transport indispensable.

Answer 11.

- (a) Reasons for the need of safe waste disposal are :

(i) Accumulation of waste looks ugly, smells foul, attracts insects and spreads diseases.

(ii) It also causes pollution.

- (b) Waste can be reused by recycling it and making new product from it e.g., shoes from old tyres, water bags from leather etc.

- (c) (i) **Aquatic life** : Toxins present in water can kill aquatic organisms directly by changing the pH level of the water, covering the water surface and causing a reduction in the amount of dissolved oxygen.

(ii) **Terrestrial life** : When solid waste starts decomposing, it produces methane and carbondioxide which are harmful for human settlements.

(iii) **Landscape** : It ruins the natural beauty of the land and provides a home to rats and other disease carrying organisms.

- (d) (i) **Segregation** : Separating the waste into biodegradable and non-biodegradable.

(ii) **Composting** : It is an aerobic (in the presence of air) method of decomposing solid wastes. The process involves decomposition of organic waste into humus known as compost which is a good fertilizer for plants.

(iii) **Dumping** : In this method, waste materials are dumped in open low lands away from the city.



GURUKUL

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the **Survey of India** Map Sheet No. **45D/10** and answer the following questions :

- Give the six figure grid reference for : [2]
 - The highest point in this map extract.
 - Surveyed tree north of Rampura Khera.
- On which bank of Sukli Nadi lies : [2]
 - Butri
 - Padrugarh
- Differentiate between the drainage pattern shown in grid square : [2]
 - 0704
 - 0705
- The region in this map extract receives seasonal rainfall. Give two reasons for your answer. [2]
- Calculate the distance in km between settlement Bhatana and Makawal along the cart track. [2]
- State the Compass direction of the following : [2]
 - Dattani from Marol
 - Dhavli from Makawal.
- Mention a social activity of the people living in Marol. [2]
 - What is the main occupation of the people living in this region ?
- What do you understand by : [2]
 - The black broken line in 0807
 - The vertical black line close to Easting 10
- What is the main source of water supply to Bhatana? Give a reason for your answer. [2]
- Name one natural feature in the grid square 0905. [2]
 - Identify one man made feature in the grid square 1003.

Question 2.

On the outline map of India provided :

- Draw and name the Tropic of Cancer. [1]
- Label the river Godavari. [1]
- Mark and name the Garo Hills. [1]
- Mark C on the coal fields in Jharia. [1]
- Mark with an arrow and name the NE monsoon over the Bay of Bengal. [1]
- Shade and name the Gulf of Kutch. [1]
- Shade and name the coastal plain that receives rainfall in October-November. [1]

- Mark with a dot and name Delhi. [1]
- Shade a region with Black Cotton Soil. [1]
- Use an arrow to point at a densely populated state in South India. [1]

PART-II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- Mention the four seasons that prevail in India stating the months for each. [2]
- State the agricultural benefits derived from : [2]
 - The Westerly Depressions in Punjab.
 - The Kalbaisakhi in Assam.
- Give a reason for each of the following : [3]
 - Kolkata receives heavier rain than Lucknow.
 - The Summer Monsoon winds blows over the Arabian Sea from the South-West.
 - Thar is a desert.
- Study the climatic data given below and answer the questions that follow : [3]

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 12.0 | 25.5 | 26.3 | 27.1 | 30.0 | 36.2 | 36.0 | 37.9 | 30.3 | 28.4 | 21.0 | 16.6 |
| Rainfall cm | 1.5 | 0.1 | 0.0 | 1.4 | 1.1 | 21.0 | 25.3 | 27.2 | 24.0 | 9.4 | 1.5 | 0.4 |

- What is the annual range temperature of the station ?
- What is the total annual rainfall experienced by the station ?
- Why would it be correct to presume that the station lies in the interior and not on the coast ?

Question 4.

- Mention two differences between Alluvial Soil and Black Cotton Soil. [2]
- Name an area in India in which each of the following processes take place : [2]
 - Sheet erosion
 - Gully erosion
- What is soil conservation ? State a method of soil conservation in the : [3]
 - Arid and Semi-Arid region
 - River valleys prone to flood

(d) Name the soil which :

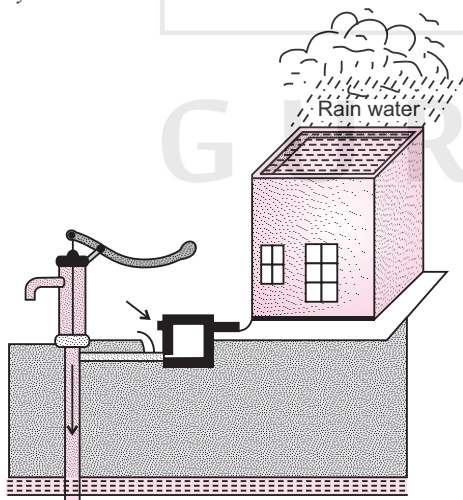
- (i) is good for cultivation of sugarcane
- (ii) is acidic in nature
- (iii) occurs ex situ.

Question 5.

- (a) How do trees in the Tropical desert forests adapt themselves to the dry climate ? [2]
- (b) Name the tree as per its characteristics given below : [2]
 - (i) The wood is hard and suitable for ship building.
 - (ii) The stilt roots are underwater during high tide.
- (c) Explain why the forest cover in India is shrinking ? [3]
- (d) Name the natural vegetation found in the following regions : [3]
 - (i) The western slopes of the Western Ghats.
 - (ii) The Nilgiris. (iii) Western Rajasthan.

Question 6.

- (a) Give a reason for the significance of irrigation in : [2]
 - (i) Punjab (ii) Rajasthan.
- (b) Name a state where : [2]
 - (i) Tube wells are common.
 - (ii) Tank irrigation is popular.
- (c) Give one geographical reason for each of the following : [3]
 - (i) Sprinkler irrigation is practised in arid and semi-arid regions.
 - (ii) A tubewell should be installed in a fertile and productive region.
 - (iii) Canal irrigation is more suitable in the Northern Plains.
- (d) Study the diagram below and answer the questions that follow : [3]



- (i) Name the activity shown in the diagram.
- (ii) Give two objectives of the activity named in (d) (i).

** Answer is not given due to change in the present syllabus.

[3] Question 7.

- (a) Give the names of four important types of iron ore found in India. [2]
- (b) Name the following : [2]
 - (i) An offshore oil field in the Gulf of Cambay.
 - (ii) An oil refinery in Bihar.
- (c) (i) Name the state that produces the largest amount of limestone.** [3]
 - (ii) State two uses of limestone.**
- (d) State an important industrial use of : [3]
 - (i) Manganese (ii) Coal
 - (iii) Aluminium

Question 8.

- (a) What is Mixed farming ? Mention any one benefit of Mixed farming. [2]
- (b) Give the geographical requirements for the cultivation of sugarcane. [2]
- (c) Explain the following terms and name the crop with which each is associated : [3]
 - (i) Retting (ii) Ratooning
 - (iii) Ginning
- (d) Give geographical reasons for the following : [3]
 - (i) Regular pruning is essential for tea bushes.
 - (ii) Coffee beans are roasted.
 - (iii) Millets are known as dry crops.

Question 9.

- (a) Differentiate between Mineral-based industry and Agro-based industry giving one example for each. [2]
- (b) 'Though Uttar Pradesh has the largest number of sugar mills yet Maharashtra is the largest producer of sugar.' Give any two reasons to justify the statement. [2]
- (c) Give the geographic term for each of the following : [3]
 - (i) Non-mulberry silk produced in Madhya Pradesh.
 - (ii) Rejected cane after crushing.
 - (iii) The rearing of silkworms to obtain silk.
- (d) With reference to the cotton textile industry answer the following questions : [3]
 - (i) Give two reasons why Mumbai is an important cotton textile industry.
 - (ii) Mention two more important centres of cotton textile industry in India.

Question 10.

- (a) 'The Iron and Steel industry constitutes the backbone of modern industrial economy.' Give two reasons to justify the statement. [2]
- (b) (i) Name an Iron and Steel Industry set up in Orissa with the help of a famous German firm. [2]
 - (ii) From where does the industry named in (b) (i) get its iron ore and manganese ?

(c) Name a manufacturing centre for each of the following industries : [3]

- (i) Aircraft
- (ii) HMT
- (iii) Railway coaches

(d) Name two products of each of the following industries : [3]

- (i) Petrochemical industry.
- (ii) Heavy engineering industry.
- (iii) Electronic industry.

Question 11.

(a) Mention two reasons why more people use railways rather than airways ? [2]

(b) Why is inland waterways declining in its importance ? Give two reasons for your answer. [2]

(c) What do you mean by the following : [3]

- (i) Sewage. (ii) Eutrophication.
- (iii) Recycling.

(d) 'Methane is an air pollutant that causes Greenhouse effect.' Name three sources of this gas. [3]

ANSWERS

PART-I

Answer 1.

(a) (i) The highest point on the map : 365-078065

(ii) 072074

(b) (i) Butri - Left bank

(ii) Padrugarh - Right bank

(c) (i) Trellised (ii) Radial

(d) Open scrub, seasonal streams, dry river beds broken ground, causeway. (Any two)

(e) Distance on the map between Bhatana and Makawal along the cart track is 9.8 cm.

As per scale 2 cm on the map is equal to 1 km on the ground.

So, 9.8 cm on the map is equal to $\frac{1}{2} \times 9.8 = 4.9$ km = 5 km

(f) (i) SW (ii) NE

(g) (i) Monthly fair at Marol

(ii) Agriculture/Farming

(h) (i) 0807-Disappearing drainage pattern

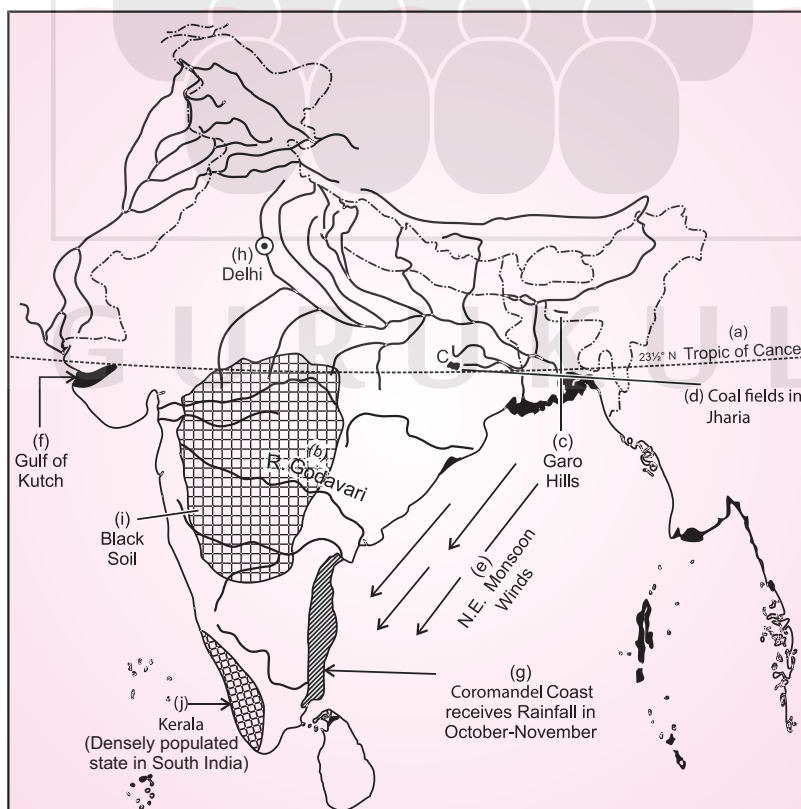
(ii) 72°35' East longitude

(i) Perennial lined wells because seasonal streams and dry tanks cannot provide water to the settlement of Bhatana.

(j) (i) 0905 - Broken ground

(ii) 1003 - Huts/Cart track

Answer 2.



PART-II

Answer 3.

(a) Four seasons in India are :

1. Hot/Summer season (March–May).
2. The Rainy season or the season of South-West monsoon. (June–September).
3. The season of the Retreating South-West monsoon (October–November).
4. Cold/Winter season (December–February)

(b) (i) Wheat and Barley in Punjab

(ii) Tea in Assam

(c) (i) The Bay of Bengal branch of South-West monsoon is deflected towards the west along the Himalayas. The rainfall goes on decreasing as it proceeds through the Ganga valley and on its way, it gives more rainfall to Kolkata in West Bengal. By the time it reaches Lucknow in U.P., it has already shed its moisture and hence gives less rainfall.

(ii) A high pressure gradient builds up between the hot North India with intense low pressure and cooler water bodies surrounding it with high pressure. The low pressure area attracts the South-East trade winds blowing in the Southern hemisphere. After crossing the equator, these winds are deflected towards their right to the Indian subcontinent and they blow towards West coast from South West coast over the Arabian Sea.

(iii) The Arabian Sea branch of SW monsoon blows parallel to the Aravalli that do not intercept the winds. Therefore Thar desert, located in the east, does not offer any rain. Less than 25 cm rainfall occurs in winter due to the westerly depressions. The Bay of Bengal branch of SW monsoon is exhausted by the time it reaches the windward slopes of the Aravallis. These winds shed no rain on the leeward side where the Thar Desert lies. Humidity is very low in summer. The moisture evaporates before it could rain. The moisture laden winds blowing over Rajasthan do not saturate as the heat of the Thar region increases the capacity to hold moisture, so there is no rainfall.

(d) (i) $36.2^{\circ}\text{C} - 12.0^{\circ}\text{C} = 24.2^{\circ}\text{C}$.

(ii) 112.9 cm.

(iii) It is in the interior because its annual range of temperature is high, and rainfall is low, which is expected to be pretty heavy on the coastal areas.

Answer 4.

| (a) | Alluvial Soil | Black Cotton Soil |
|-----|--|---|
| 1. | Transported soil which is brought down by the agents of erosion. | 1. Residual soil which is formed by denudation of lava rocks. |

| | | | |
|----|--|----|---|
| 2. | It is pale brown in colour, sandy in texture. | 2. | It varies in colour from deep black to chestnut brown, clayey in texture. |
| 3. | It is replenished by floods during rainy season. | 3. | This soil is formed in situ. |
| 4. | It is found in the flood plains and delta regions. | 4. | It is found in the Deccan Trap region. |

(b) (i) The flood plains of Kosi, Damodar, Nilgiris

(ii) Chambal valley.

(c) Soil conservation is a method of preventing soil erosion to retain the fertility of the soil.

(i) **Arid and semi-arid region** : Belts of trees and shrubs should be planted to check the velocity of wind and thus to prevent soil erosion. Afforestation is another method of soil conservation.

(ii) **River valleys prone to flood** : Dams and barrages should be constructed so that they would check the speed of water and save soil from erosion.

(d) (i) Alluvial soil/Black soil.

(ii) Laterite soil.

(iii) Alluvial soil.

Answer 5.

(a) 1. The trees are of Xerophyte type. They have very thin leaves or no leaves.

2. Their stems and leaves are often covered by sharp spines (thorns).

3. They have long roots to draw water as the rainfall is very scarce and also have thick fleshy stems to store water during drought.

(b) (i) Teak.

(ii) Sundari.

(c) Forest cover in India is shrinking for the following reasons :

1. Increasing urbanisation and industrialisation is an important cause of degradation in forest area.

2. Construction of hydroelectric projects have caused submergence of forest area, faulty agricultural practices like Jhuming.

3. Human activities like mining, quarrying and building has resulted in deforestation at a large scale.

4. Growing demand for agricultural land with growing population and demand for food products has caused considerable shrinkage in forest area.

- (d) (i) Tropical evergreen forests.
 (ii) Mountain forests – mixed forests based on relief.
 (iii) Desert or semi-desert vegetation.

Answer 6.

- (a) (i) **Punjab** : South-West monsoon brings rain only during the period from end of July to middle of September. Otherwise monsoon is sporadic, erratic, uncertain and unevenly distributed. To meet the demand for water in dry season, irrigation is needed.

Some crops like rice, sugarcane needs more water. Punjab receives rainfall of about 50 cm annually. So, there is a need for irrigation to grow crops throughout the year.

(ii) **Rajasthan** : Rajasthan receives 25 cm–50 cm of rainfall from South-West monsoon. To meet the growing demand for food, for the growing population, irrigation is required with the right amount of water at the right time *e.g.*, cotton.

- (b) (i) U.P./Bihar/Punjab/Haryana.

(ii) Andhra Pradesh/Telangana/Tamil Nadu.

- (c) (i) In areas with limited supply of water, sprinkler irrigation is practiced. Sprinkler does not interfere with cultivation and results in less wastage of water with higher application efficiency.

(ii) Since the cost of installation of a tubewell is high, the farmer needs to grow HYV seeds all round the year to earn more which is only possible in the fertile production region like North Indian plains.

(iii) Perennial rivers, soft and flat land and fertile soil have encouraged canal irrigation in Northern Plains.

- (d) (i) Technique of rainwater harvesting known as recharging of groundwater through hand pumps.
 (ii) 1. The recharging of the shallow or deep aquifers by hand pumps may increase the level of underground water.
 2. Improves the quality of groundwater which can be used till the next rainfall.
 3. To reduce surface run-off.
 4. To reduce soil erosion.

Answer 7.

- (a) (i) Magnetite (ii) Hematite
 (iii) Limonite (iv) Siderite
 (b) (i) Aliabet island close to Bhavnagar in Gulf of Cambay.
 (ii) Barauni.
 (d) (i) Manganese : It is the most important mineral for making iron and steel.

(ii) Coal : Coal is used in the generation of electric power/used in the iron and steel industry as well as in cement industry.

(iii) Aluminium :

1. It is used in electrical industry for its good conductivity.
2. Used in the automobile industry.

Answer 8.

- (a) In mixed farming, cultivation of crops and rearing of livestock is done simultaneously.

Benefit : In case of failure of a crop, the farmer can get some income from the livestock or vice-versa and they do not need extra expenditure.

- (b) Temperature—20°C–30°C.

Rainfall—100 cm–200 cm rainfall.

Soil—Alluvial or black soil.

- (c) (i) Retting : It is associated with jute. It is a micro biological process. In which jute bundles are submerged in soft water for 2-3 weeks. This loosens the outer bark and facilitates removal of fibre from the stalk.

(ii) Ratooning : It is associated with sugarcane. After the first crop, the sugarcane is cut leaving the root intact in the soil. The lower part of the stem which is left in the soil is well fertilised and the stem begins to grow again.

(iii) Ginning : It is associated with cotton. The cotton fibre is separated from the raw materials or the seeds.

- (d) (i) Pruning is essential for tea bushes because :
 The removal of the central stem encourages the quick development of lateral branches. Pruning also helps in growing new shoots bearing soft leaves in plenty.

(ii) Coffee gets its characteristic flavour only after roasting. Roasting gives it a brown colour and pleasant taste.

(iii) Millets can be grown where the rainfall is very low, whereas rice or wheat cannot be grown. It is drought-resistant crop. It needs no special soil to grow.

Answer 9.

- (a) (i) Mineral-based industry depends on the minerals for their raw material, *e.g.*, iron and steel industry.

(ii) Agro-based industry depends on the agricultural products for their raw material, *e.g.*, jute industry/sugar industry.

- (b) (i) Tropical climate, black soil, high temperature throughout the year, good rainfall, irrigation, and frost free growing season are best suited

geographical conditions which gave high yield per unit in Maharashtra as compared to North India (U.P.).

(ii) The sucrose content is higher in the tropical variety of sugarcane in Maharashtra as compared to that in Uttar Pradesh.

(iii) The cooperative sugar mills are better managed in Maharashtra, than in U.P.

(iv) Most of the mills are new in Maharashtra with modern machinery as compared to U.P.

(Any two)

(c) (i) Tussar. (ii) Bagasse.

(iii) Sericulture.

(d) (i) 1. Easy availability of raw cotton in and around Mumbai.

2. Humid climate of shore-based Mumbai is ideal for this industry as the thread does not break so easily.

3. Cheap hydroelectric power is available from Tata HEP grid from Western Ghats.

4. Mumbai's location as an important international port, helps in import of long-staple cotton and machinery, and export of finished goods.

(ii) 1. Ahmedabad in Gujarat.

2. Coimbatore in Tamil Nadu.

Answer 10.

(a) (i) Iron and Steel industry is the key element in the heavy industrial structure of a nation. Most of the important industries such as automobile, locomotives, railway tracks, ship-building, machine and tools, and defence equipments depend on iron and steel industry.

(ii) The production and consumption of iron and steel is one of the most significant measures of the level of industrialisation and economic growth of a country.

(b) (i) Rourkela Steel Plant.

(ii) 1. Iron ore comes from Sundargarh and Keonjhar districts, these sources are located 77 km from its location.

2. Manganese comes from Noamundi or Keonjhar.

(c) (i) Aircraft—Bengaluru.

(ii) HMT—Hyderabad.

(iii) Railway coaches—Kapurthala in Punjab.

(d) (i) **Petrochemical industry** : Polythene, PVC of plastic group, nylon, dacron, synthetic rubber.

(ii) **Heavy engineering** : Engine, generator, pumps, machines, railway wheels, railway tracks.

(iii) **Electronic industry** : Components like capacitor, resistor, printed circuit board, computers, monitors, television sets, defence equipments.

Answer 11.

(a) 1. Air transport is very expensive so most people cannot afford it.

2. Not all places are connected by airways.

(b) 1. It is slower means of transport.

2. Water transport provides access to limited areas.

3. Diversion of water from the river for the purpose of irrigation and silting of the river beds have reduced the importance of inland water transport.

(c) (i) **Sewage** : The liquid and solid waste from the municipality, pollutants from the industries like arsenic, lead, mercury, fluorides flow through the water channels and finally join larger water bodies. If not treated, it causes serious health problems.

(ii) **Eutrophication** : It is a process of depletion of oxygen from water bodies occurring either naturally or due to human activities.

(iii) **Recycling** : It is a process in which the waste is converted into raw material that is usable in other useful manufacturing process. This helps to reduce the waste generation by reversing or recycling it.

(d) 1. Methane is released by industries using coal gas and coal mining.

2. It is released from the landfills as large amount of waste is deposited on or under the ground.

3. It is emitted by natural sources such as wetlands, as well as human activities such as leakage from natural gas systems and the raising of livestock.

4. Rotting vegetation produces methane.

• •

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the **Survey of India** Map Sheet No. **45D/7** and answer the following questions :

- (a) Give the six figure grid reference for : [2]
 - (i) Surveyed tree 219 north-east of Pirojpur settlement.
 - (ii) Triangulated height 364 in the southern part of the map extract.
- (b) What is the direction of flow of Banas river? Give one evidence for your answer. [2]
- (c) What do you understand by : [2]
 - (i) 12r in the grid square 9878 and
 - (ii) 180 in the grid square 9182.
- (d) Calculate the area in kilometer of the region between 93 and 99 eastings and 76 and 81 northings. [2]
- (e) (i) What is the compass direction of settlement Juval from settlement Arnivada ? [2]
 - (ii) Give the difference in altitude between the highest point on the map to the altitude of Moti Bhatamal.
- (f) Name the feature depicted by : [2]
 - (i) Blue line in Balaram nadi
 - (ii) Brown patch in 9678
- (g) Name the drainage pattern found in : [2]
 - (i) 9782
 - (ii) 9478
- (h) What do you infer about the climate of the region by the information provided on the map? Give an evidence in support of your answer. [2]
- (i) Name two manmade and two natural features in 9580. [2]
- (j) What do the following denote : [2]
 - (i) Black vertical line running along with 93 easting.
 - (ii) RS near Chitrasani settlement.

Question 2.

On the outline map of India provided :

- (a) Draw and number the Standard Meridian of India. [1]
- (b) Label the river Mahanadi. [1]
- (c) Mark and name Lake Chilika. [1]
- (d) Shade and name the Gulf of Mannar. [1]
- (e) Mark and name the Vindhya Mountains. [1]
- (f) Shade and name a sparsely populated region in western India. [1]

- (g) Shade a region with alluvial soil in South India. [1]
- (h) Mark and name Kolkata. [1]
- (i) Mark with arrows and name South-West Monsoon winds over the Bay of Bengal. [1]
- (j) Mark and name Mumbai High. [1]

PART-II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) What is the name given to the climate of India ? Mention any two factors responsible for such a type of climate. [2]
- (b) Name the following : [2]
 - (i) The winds that bring heavy rain to Cherrapunji.
 - (ii) The local wind that brings a light rainfall to South India and is good for tea and coffee crops.
- (c) Give a geographical reason for each of the following : [3]
 - (i) Kanpur has extreme temperature conditions.
 - (ii) Kochi is warmer than Mumbai even though both lie on the western coast of India.
 - (iii) The Ganga Plain gets the monsoon rain much later than the west coast of India.
- (d) Study the climatic data of station x given below and answer the questions that follow : [3]

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 24.5 | 25.7 | 27.7 | 28.4 | 30.0 | 32.5 | 31.0 | 30.2 | 29.8 | 28.0 | 25.9 | 24.7 |
| Rainfall cm | 4.3 | 1.6 | 1.7 | 2.4 | 2.8 | 4.6 | 8.6 | 11.4 | 11.8 | 30.6 | 35.0 | 13.9 |

- (i) Calculate the total annual rainfall experienced by the station.
- (ii) What is the annual range of temperature ?
- (iii) On which coast of India does the station lie ? Give a reason for your answer.

Question 4.

- (a) What is soil erosion ? Mention two steps that could be taken to prevent soil erosion. [2]
- (b) Mention two similarities between red soil and laterite soil. [2]
- (c) Give a geographical reason for each of the following : [3]

- (i) Alluvial soil differs in texture.
 (ii) Black soil does not get leached.
 (iii) Khadar is more fertile than bhangar.
- (d) Define the following : [3]
 (i) Sheet erosion (ii) Soil conservation
 (iii) In situ soil

Question 5.

- (a) (i) Name the forest which is commercially most important in India. [2]
 (ii) Name two trees which grow in this forest.
- (b) (i) Name the forests which grow on the windward slope of the Western Ghats. [2]
 (ii) Why do such forests grow in this region ?
- (c) To which type of forest do the following trees belong ? [3]
 (i) Hintal and Sundari. (ii) Rosewood and Ebony.
 (iii) Deodar and Chir Pine.
- (d) Give three reasons for rapid depletion of forest resources in India in the past. [3]

Question 6.

- (a) "Without irrigation, development of agriculture is difficult in India." Clarify the statement by giving two reasons. [2]
- (b) Mention two factors which are essential for the development of tube well irrigation. [2]
- (c) Give one reason for each of the following : [3]
 (i) The Northern Plain of India is found suitable for canal irrigation.
 (ii) Tank irrigation is an important method of irrigation in Karnataka.
 (iii) Although expensive, yet, sprinkler irrigation is gaining popularity in recent times.
- (d) (i) What is rainwater harvesting ? [3]
 (ii) Mention two objectives of rainwater harvesting.

Question 7.

- (a) (i) Name any three types of coal found in India. [2]
 (ii) Which type of coal is mostly used in Iron and Steel Industries ?
- (b) Name the following : [2]
 (i) An offshore oilfield of India.
 (ii) An iron ore mine of Karnataka.
- (c) Name the following : [3]
 (i) Largest coalfield of India.
 (ii) Oldest oilfield of India.
 (iii) Best variety of iron ore.
- (d) (i) Name the metal extracted from Bauxite. [3]
 (ii) Mention two uses of this metal.

Question 8.

- (a) Mention any two reasons for the importance of agriculture in India. [2]
- (b) With reference to rice cultivation answer the following : [2]

- (i) Why does rice grow well in a soil with a clay like subsoil ?
 (ii) What is the advantage of growing rice in nurseries before it is transplanted ?
- (c) Study the picture given below and answer the questions that follow : [3]



- (i) Name one state where this crop grows well.
 (ii) Why are mostly women employed to harvest it ?
 (iii) Mention two geographical conditions suitable for the cultivation of this crop.
- (d) Explain briefly the following terms : [3]
 (i) Shifting cultivation
 (ii) Bud grafting** (iii) Oil cake

Question 9.

- (a) Give two reasons for the importance of the jute industry in the Ganga-Brahmaputra delta region.** [2]
- (b) Mention two problems of the Cotton Textile industry in India. [2]
- (c) (i) Give two reasons why the woollen industry is not a flourishing industry in India.** [3]
 (ii) Name two centres for this industry.**
- (d) With reference to the Silk industry, answer the following : [3]
 (i) Why is Karnataka the largest producer of mulberry silk ?
 (ii) Mention two varieties of non-mulberry silk produced in India.
 (iii) Name one silk weaving centre each in U.P. and in Tamil Nadu.

Question 10.

- (a) Mention two advantages that a mini steel plant has over an integrated iron and steel plant. [2]
- (b) (i) Name an iron and steel plant which was established with British collaboration. [2]
 (ii) From where does it get its supply of :
 1. iron ore 2. manganese
 3. coal
- (c) Give a reason for each of the following : [3]
 (i) Products made from petrochemicals are growing in popularity.
 (ii) A heavy engineering industry requires huge capital investment.**

** Answer is not given due to change in the present syllabus.

- (iii) The electronics industry contributes to the development of the country.
- (d) Name the industrial product for which the following centres are well known : [3]
- (i) Bhilai (ii) Chittaranjan
- (iii) Koraput
- Question 11.**
- (a) Mention two advantages and one disadvantage of waterways. [3]
- (b) Roadways are always considered more important than any other means of transportation. Give two reasons in support of the statement. [2]
- (c) (i) Mention any two sources of waste. [2]
- (ii) What are Biodegradable waste ?
- (d) Explain briefly the meaning of the following terms : [3]
- (i) Composting. (ii) Incineration. (iii) Segregation.

ANSWERS

PART-I

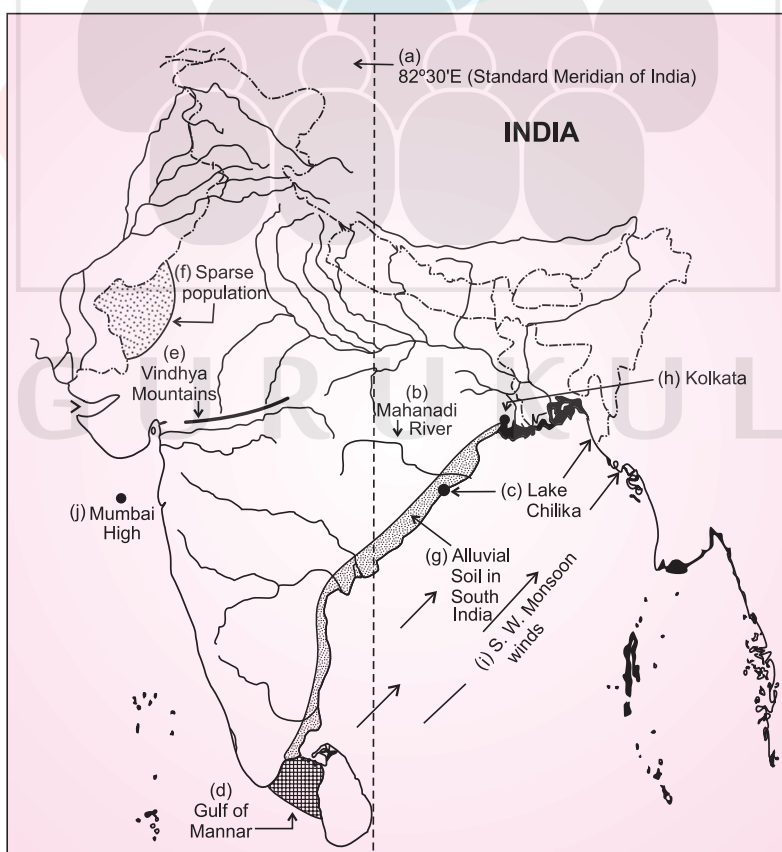
Answer 1.

- (a) (i) 979756 (ii) 957744
- (b) North-east to west
Spot heights are decreasing towards west
- (c) (i) Relative height of sand dunes is 12 meters.
(ii) It is contour line showing 180 meters above mean sea level.
- (d) Area : Length – 76 to 81 Northing = 10 cm > 5 km,
Breadth – 93 to 99 Easting = 12 cm > 6 km.
As per scale 2 cm to 1 km. So the area = 5 km × 6 km = 30 sq km.
- (e) (i) North-west
(ii) Highest point on the map is 542 meters, Moti Bhatamal 198 meters. So the difference in altitude

is 542 m – 198 m = 344 m.

- (f) (i) Blue line in Balaram nadi indicates perennial flow of water.
(ii) Sand dunes
- (g) (i) Radial drainage pattern
(ii) Disappearing drainage pattern
- (h) The region receives seasonal scanty rainfall. Open scrub – broken ground – large number of seasonal streams – large number of perennial wells, indicate the region receives seasonal scanty rainfall.
- (i) Man-made features are permanent huts and cart track. Natural features are Banas river, broken ground, etc.
- (j) (i) Line of Longitude (ii) Railway station

Answer 2.



PART-II

Answer 3.

- (a) Tropical Monsoon type of Climate.

The factors which are responsible for such type of climate in India :

1. Effect of Himalayas
2. Latitudinal extent

- (b) (i) Cherrapunji receives rains from the Bay of Bengal branch of South West Monsoon winds.

(ii) Mango Showers or Cherry Blossoms.

- (c) (i) Kanpur is situated in the interior part of the country and is away from the influence of the sea. So, it is very cold in Winter and very hot in Summer.

(ii) Kochi is located closer to the equator, than Mumbai. So, Kochi experiences vertical rays of the Sun.

(iii) Ganga plain lies in North India and the South-West monsoon, first strikes the west coast of India before North India.

- (d) (i) 128.7 cm

(ii) $32.5^{\circ}\text{C} - 24.5^{\circ}\text{C} = 8^{\circ}\text{C}$

(iii) The station lies on the East coast. As the station receives the bulk of its rainfall in the month of Oct.-Nov. period which is due to the retreating monsoon and North-East Monsoon.

Answer 4.

- (a) Soil erosion is the removal of top soil by different agents of weathering like running water, wind, overgrazing, etc.

The two steps to prevent soil erosion are :

1. Afforestation
2. Terrace farming

- (b) The two similarities are, both the soils are of red colour due to the presence of iron oxide. Both are not moisture retentive.

- (c) (i) Alluvial soil is coarse in the upper valley of the rivers because the eroded matter is carried away by the fast flowing river but in the lower course, the river reduces its speed and the soil particles become finer due to attrition or because the load itself gets eroded.

(ii) Black soil does not get leached because it is clayey and sticky and moisture retentive and therefore the rain cannot wash out the silicates.

(iii) Khadar is the newer alluvium which keeps setting replenished by the river bringing down more eroded material.

- (d) (i)
- Sheet erosion**
- : Due to heavy rains, a surface film of water carries away the even surface layer of the top soil as it moves.

(ii) **Soil conservation** : Soil conservation is an effort, made by man to prevent soil erosion to retain the fertility of the soil.

(iii) **In situ soil** : It is formed where it is found. It has not been moved from its original place of deposition. For example, Black Soil.

Answer 5.

- (a) (i) Tropical Deciduous Forests.

(ii) Teak, Sal, and Sandalwood (Any two)

- (b) (i) Tropical Evergreen forests/Tropical rain forests grow on the windward slope of Western Ghats.

(ii) Tropical Evergreen forests are found in regions receiving more than 200 cm of rainfall and where the annual temperature is 25°C to 27°C . The windward slopes of the Western Ghats experience the same climatic conditions. So, Evergreen forests grow there.

- (c) (i) Littoral or Tidal or Mangrove forest

(ii) Tropical Evergreen forest/Tropical rain forest

(iii) Mountain forest

- (d) (i)
- Shifting cultivation**
- : Jhumming or shifting agriculture by tribals in the hilly areas of North-East India causes extensive damage.

(ii) **Growing demand for agricultural land** : With growing population, demand for food products and agricultural raw materials has increased significantly. This has caused considerable shrinkage in forest area.

(iii) **Growing human activity** : Human activities like mining, quarrying, urbanisation, industrialisation and construction of hydroelectric projects like Narmada Project have caused submergence or degradation of forests.

Answer 6.

- (a) The rainfall in India is restricted from June to September except in Tamil Nadu.

1. Only 30% of the cultivated area receives rainfall above 100 cm, while about 40% of the cultivated area receives less than 75 cm of annual rainfall. In these areas crops cannot be grown without irrigation.

2. Some crops like rice, sugarcane, jute, cotton, etc., need more water. Hence, need to be irrigated to cater to increasing demand of food and cash crops, there is a need to grow crops all the year round.

- (b) (i) High underground water level/fertile agricultural land

(ii) Cheap supply of electricity.

- (c) (i) Perennial source of water i.e. snow-fed rivers and low relief with deep fertile soil are responsible for the development of canal irrigation in Northern India.

(ii) Karnataka, in Deccan region, consists of underlying hard rocks which are impervious. It does not allow the water to seep through. The region has large number of natural depressions where tanks can be built. It is also difficult and expensive to built canal or well as a form of irrigation.

(iii) Sprinkler irrigation does not involve any loss of water by seepage or evaporation as the water is supplied by pipes. It is not exposed to the Sun. It is the best method for conserving water.

(d) (i) It is a technique to increasing the recharge of ground water by capturing and storing rainwater.

(ii) Two objectives are :

1. Recharging the ground water and raising its level to meet the demand of water requirement in the dry season.
2. Checking the rainwater from flowing far away so as to prevent soil erosion and flooding of the surrounding area.

Answer 7.

(a) (i) Anthracite, Bituminous and Lignite are the three types of coal found in India.

(ii) Bituminous

(b) (i) Mumbai High

(ii) Iron ore mines in Karnataka are Simoga/Bellary/Hospate/Chitradurga/Kemmangundi

(Any one)

(c) (i) Jharia/Raniganj

(ii) Oldest oil field in India is Digboi.

(iii) Magnetite

(d) (i) Aluminium

(ii) Uses : Used for aircrafts, ships and utensils.

It is also used in electrical industries for its good conductivity.

Answer 8.

(a) 1. Agriculture not only provides food and fodder to human beings for their livestock.

2. It is also the source of raw material for many industries like Sugar, Textile and Edible oil. It provides employment to millions of people as it acts as a consumer of many industrial products.

3. Agriculture also helps us to earn foreign exchange by exporting tea, coffee, jute, etc.

(b) (i) Rice needs ankle deep standing water during the period of growth. Clay soil does not allow the water to seep through it, so it is an ideal soil for the growth of rice.

(ii) There is less wastage of seeds through broadcasting method and during the process of transplantation, the weeds can be easily removed.

(c) (i) Brahmaputra Valley and Surma Valley of Assam.

(ii) The women are mostly employed in the tea plantations as they are the source of cheap and skilled labour to facilitate plucking of tea leaves.

(iii) Temperature : 24°C – 30°C

Rainfall : 150 cm to 350 cm of annual rainfall, well distributed throughout the year is needed for the tea crop.

Soil : Well drained, deep friable soil.

(d) (i) **Shifting cultivation or slash and burn or jhumming** : It is mostly practiced in North-East India. A patch of forest land is cleared and crops are grown. After 2-3 years when the fertility of the soil is exhausted, land is abandoned and the farmer moves to a fresh piece of land and the process continues.

(iii) **Oil cake** : After extraction of oil from the oil seeds, the left over residue is known as oil cake which can be used as an important cattle feed and organic manure.

Answer 9.

(b) Problems of cotton textile industry are :

1. **Obsolete machineries** : Most of the mills have obsolete machineries being thirty years old. This has resulted in low productivity and inferior quality.

2. **Inadequate power supply** : With increasing population, the problem of power supply is becoming acute and the industry suffers from the shortage of power.

3. **Low productivity of the labour** : Labour productivity is extremely low in India as compared to that of advanced countries.

4. **Stiff competition** : Indian cotton textile industry has to face stiff competition from the power loom and the synthetic fiber products.

(Any two)

(d) (i) Karnataka is the largest producer because of favourable climate for rearing of silkworms and availability of mulberry plants and Bombyx mori silkworm which is reared throughout the year.

(ii) Eri and Tussar are the two non-mulberry silk.

(iii) Silk weaving centre in Tamil Nadu is Kanchipuram and silk weaving centre in UP is Mirzapur.

Answer 10.

- (a) 1. Mini Steel Plants use scrap iron which is easily available and they do not require heavy capital investment.
2. They can be set up at any convenient place as they do not need huge infrastructure and they do not cause pollution as they use electric arc furnaces.
3. Since they are located in industrial towns so transport cost is reduced. **(Any two)**
- (b) (i) Durgapur Steel Plant.
- (ii) 1. It gets its iron ore from Keonjhar in Odisha and Singhbhum in Jharkhand.
2. Manganese comes from Keonjhar in Odisha.
3. Coking coal comes from Raniganj and Jharia.
- (c) (i) They are cost effective as produced at mass scale, and because of their durability and washability they are growing very popular.
- (iii) The electronic industry contributes to the development of the country as it has diversified its production range to meet the needs of the post and telegraph department, railways, defence, overseas communication services and electricity board.
- It has contributed to the space technology and various electronic and space research programmes.
- (d) (i) Bhilai – Iron & Steel Plant.
- (ii) Chittaranjan Locomotive Works – For the production of electric railway engines.
- (iii) Koraput – The engines for MIG Aircrafts are manufactured.

Answer 11.

- (a) The two advantages of water transport are :
1. It is suitable for carrying heavy and bulky goods.

2. It is fuel efficient and environment friendly mode of transport.

Disadvantages : The seasonal rivers of peninsular India are not navigable. It is the slow means of transport .

Due to silting of river beds and diversion of water for irrigation canals the river beds have become shallow so, navigation is not possible in all rivers.

- (b) Roadways are considered more important because roads can be constructed in remote areas, difficult terrain, high altitudes and steep slopes where no other means of transport can reach. Roads provide door to door service. They are quicker and safe means of transport, thus the cost of transportation is reduced considerably.

(c) (i) Various sources of waste are :

1. Domestic waste
2. Industrial waste
3. Agricultural waste
4. Municipal waste

(Any two)

(ii) It is a waste which decomposes through the actions of bacteria, fungi and other living organisms.

- (d) (i) **Composting :** Composting is biodegradable organic waste like tree leaves, vegetable peel and discarded food items (converted into useful manure).

(ii) **Incineration :** Incineration involves burning of waste at a very high temperature and are fed into an incineration chamber and combustion destroys the organic compound.

(iii) **Segregation :** The waste from residential areas, hotels, restaurants, office complexes and commercial areas must be segregated at source into different categories of biodegradable, non-biodegradable, biomedical, toxic and non-toxic waste.



GURUKUL

QUESTIONS

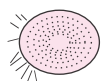
PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the Survey of India Map Sheet No. 45D/10 and answer the following questions :

- (a) Give the four figure grid reference for a figure similar to the one given below. Identify the figure :



- (b) How is the drainage pattern in grid square 1606 different from that in grid square 1608 ? [2]
- (c) Identify the correct six figure grid reference for each of the following : [2]
- (i) Gautam Maharishi Mandir 200071; 071200; 201070 ?
- (ii) 0.443 172059; 052179; 179052 ? [2]
- (d) Name the most prominent settlement other than ABU. Give two reasons to support your answer. [2]
- (e) (i) What is the general slope of the land in the north-west corner of the map extract ?
- (ii) What is the compass direction of Chandela (1803) from Hanumanji ka Mandir (2208) ? [2]
- (f) What do you understand by the following terms as used on the map extract: [2]
- (i) Causeway (1702)
- (ii) Falls 25m (2307).
- (g) (i) If you were to cycle at 10 km an hour, how much time would it take to cover the north-south distance depicted on this map extract ?
- (ii) Calculate the area enclosed by Eastings 19 to 22 and Northings 04 to 09. [2]
- (h) (i) Identify one natural feature in grid square 1610.
- (ii) Identify one man-made feature in grid square 1903. [2]
- (i) Give two probable reasons, other than dry water features, to indicate that the region depicted on the map extract receives seasonal rainfall. [2]
- (j) Calculate, in metres, the difference in height between the highest point on the map extract and the contour height given in grid square 2402. [2]

Question 2.

On the outline map of India provided :

- (a) Mark and name the Nilgiris. [1]

- (b) Shade and label the Malwa Plateau. [1]
- (c) Shade and label the Malabar Coastal Plains. [1]
- (d) Mark and name the river Gomti. [1]
- (e) Shade and name the Andaman Sea. [1]
- (f) Mark and name Allahabad. [1]
- (g) Mark with a single arrow and name the winds that bring winter rain to the north-west India. [1]
- (h) Mark and name Digboi. [1]
- (i) Mark an area with laterite soil below the Tropic of Cancer. [1]
- (j) Mark and name the Karakoram Pass. [1]

PART—II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) Explain two factors that affect the climate of India giving a suitable example for each. [2]
- (b) State two differences between the rainfalls that occur from June to September and that from December to February in North India. [2]
- (c) Give a geographic reason for each of the following : [2]
- (i) Kerala has the longest rainy season.
- (ii) The Konkan coast experiences orographic rainfall.
- (iii) The city of Kanpur in Uttar Pradesh has a higher range of temperature than that of Chennai in Tamil Nadu. [3]
- (d) Study the climatic data given below and answer the questions that follow :

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 21.0 | 21.9 | 24.3 | 27.2 | 28.0 | 26.4 | 26.1 | 25.4 | 25.0 | 26.0 | 23.8 | 21.2 |
| Rainfall cm | 5.1 | 2.8 | 1.2 | 1.7 | 3.9 | 4.6 | 8.4 | 11.4 | 11.9 | 31.6 | 34.5 | 14.8 |

- (i) Identify the hottest month.
- (ii) Calculate the annual rainfall.
- (iii) Name the winds that bring the maximum rainfall to this city. [3]

Question 4.

- (a) State the characteristic of each of the soils named below that makes them most suitable for crop cultivation : [2]
- (i) Black soil (ii) Red soil

(b) State the geographic term for each of the following processes :

(i) The process by which soluble minerals dissolve in rainwater and percolate to the bottom, leaving the top soil infertile.

(ii) The process by which rainwater, flowing in definite paths, removes the top soil, thus causing deep cuts to the surface of the land. [2]

(c) Define the following :

(i) Pedogenesis (ii) Humus

(iii) Bhangar. [3]

(d) Give a geographic reason for each of the following :

(i) Alluvial soil is extremely fertile.

(ii) Need for soil conservation.

(iii) Reforestation should be practiced extensively. [3]

Question 5.

(a) State two characteristics of Tropical Deciduous forests. [2]

(b) State two reasons why Tropical Evergreen forests are difficult to exploit. [2]

(c) Identify the tree as per its characteristics mentioned below :

(i) It yields wood that is hard and scented and is usually found in high altitudes.

(ii) It is generally found in deltaic regions and is used to make boats.

(iii) The furniture made from the wood of this tree is generally the most expensive. [3]

(d) Differentiate between afforestation and deforestation. State a disadvantage of deforestation. [3]

Question 6.

(a) State two reasons why irrigation is important to a country like India. [2]

(b) Name two modern methods of irrigation. State one important reason for their growing popularity. [2]

(c) (i) Why is well irrigation still a popular means of irrigation ? Give two reasons to support your answer.

(ii) State the significance of rainwater harvesting. [3]

(d) (i) Why is the world in danger of facing a severe water shortage in the coming future ? Give two reasons to support your answer.

(ii) State one measure the Government should adopt to handle the present water crisis. [3]

Question 7.

(a) State two reasons why limestone is a valuable mineral. [2]

(b) State the most important use of the following :

(i) Iron ore (ii) Bauxite. [2]

(c) Name the :

(i) Largest oil refinery in the Public sector.

(ii) State that is the largest producer of coal.

(iii) Best variety of iron ore. [3]

(d) Give a geographic reason for each of the following :

(i) Many port cities have their own oil refineries.

(ii) Petroleum is called a 'fossil fuel'.

(iii) Coal is called a versatile mineral. [3]

Question 8.

(a) Differentiate between a Rabi crop and a Kharif crop. [2]

(b) State an important difference between the climatic requirements for growing cotton and jute. [2]

(c) Give the geographic term for each of the following :

(i) Cultivation of sugarcane from the root stock of the cane which has been cut.

(ii) The residue left behind after the crushing of oilseeds.

(iii) The process by which latex is converted into a thick, spongy mass by adding acetic acid or formic acid. [3]

(d) Give a geographic reason for each of the following :

(i) Tea is cultivated on hill slopes.

(ii) The yield per hectare of sugarcane is higher in the Southern states.

(iii) Pulses are important food crops. [3]

Question 9.

(a) (i) Why is the cotton textile industry called an agro-based industry ?

(ii) Give an important reason for it being more widespread than the jute industry. [2]

(b) (i) State one important point of similarity between the woollen industry and the silk industry. [2]

(ii) Name the state that produces the most woollen and silk products respectively. [2]

(c) (i) State two major problems faced by the sugar industry.

(ii) Name two by-products of the sugar industry. [3]

(d) (i) State one of the main problems of the silk industry.

(ii) Name two products of the jute industry, other than rope and gunny bags. [3]

(iii) Why are synthetic fibres popular ? [3]

Question 10.

(a) (i) Why is the iron and steel industry called a basic industry ?

(ii) Define a mini steel plant. [2]

(b) With which large scale industry would you identify the following manufacturing centres ?

(i) Kanpur

(ii) Rourkela

(iii) Pune

(iv) Mangalore. [2]

(c) (i) State two reasons for the growing importance in the status of petrochemical industries.

(ii) Name two products of the petroleum industry. [3]

** Answer is not given due to change in the present syllabus.

- (d) (i) State two conditions necessary for the setting up of a heavy engineering industry.
(ii) Name a ship-building yard on the east coast and a centre for making electric locomotives. [3]

Question 11.

- (a) (i) Why is the Railways an important means of transport as compared to Airways ?
(ii) State one economic benefit of the Golden Quadrilateral Project. [2]
- (b) (i) State one important difference between an expressway and a highway.

- (ii) Name the first expressway constructed in the country.

- (iii) State a reason why the Northern Rivers are more suitable for navigation than the Deccan Rivers. [3]

- (c) (i) "Waste segregation is important". Give a reason to support your answer.

- (ii) Why is nuclear waste harmful ?

- (iii) Explain briefly how as a student, you can help in the reduction of waste generation. [3]

- (d) (i) What is understood by biodegradable waste ?

- (ii) State one source of gaseous waste. [2]

ANSWERS

PART-I

Answer 1.

- (a) Dry tank with an embankment -1511/1811
- (b) Drainage pattern in 1606 is radial pattern and in 1608 is trellised pattern
- (c) (i) 200071 (ii) 179052
- (d) Vajna (1503) as it has a police chowki and metalled road.
- (e) (i) Towards the West/South-West
(ii) South-West
- (f) (i) Causeway : It is a raised metalled road over a non-perennial stream or a marshy area.

- (ii) Falls 25 m indicate that the waterfall is located at a height of 25 m.

- (g) (i) 1 hour

- (ii) Total number of grids = 15

Area of 1 grid = 1 sq km.

Thus, area of 15 grids = 15 sq km.

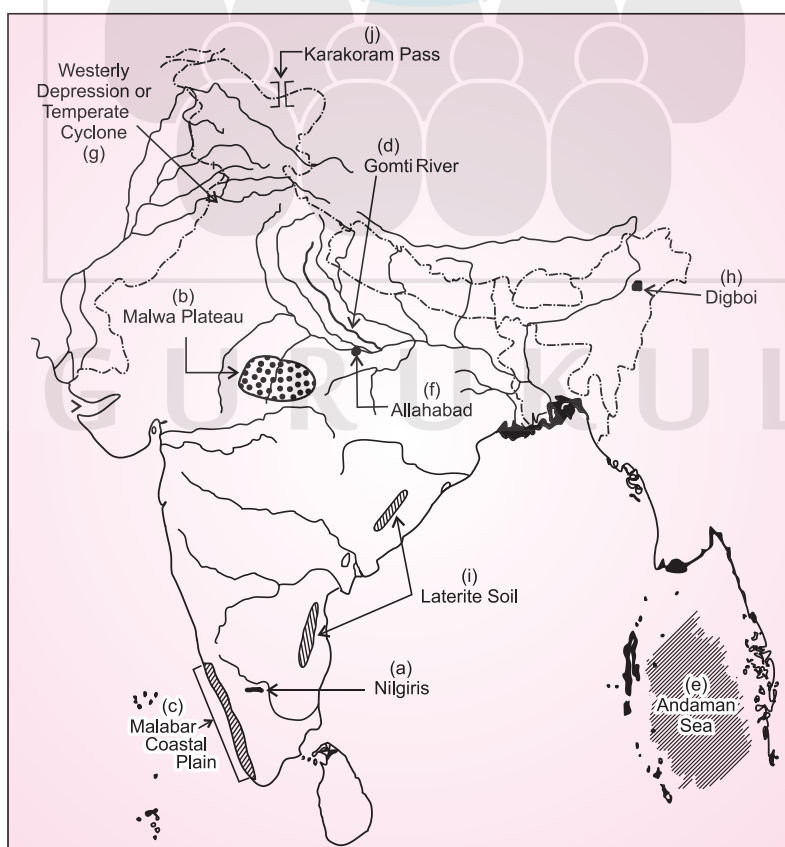
- (h) (i) 1610 : broken ground/seasonal stream/dry stream.

- (ii) 1903 : permanent settlement/embankment

- (i) Presence of broken ground/causeways/road motorable in dry season.

- (j) Highest point 1409 metres – contour height to 280 metres = 1129 metres.

Answer 2.



PART-II

Answer 3.

- (a) The factors that affect the climate of India are as follows :

(i) **Altitude** : Temperature decreases at the rate of 1°C for every 166 m rise in height. Thus, the mountains are always cooler than the plains. E.g. Darjeeling is cooler than Kolkata in summer.

(ii) **Distance from the sea** : The areas in the interior of the country have an extreme type of climate while the coastal areas have a moderate climate. This is mainly due to the influence of land and sea breeze caused by differential heating and cooling of land and sea. E.g. Delhi experiences an extreme climate while Mumbai experiences an equable climate.

- (b) The rainfall occurs during June-September is orographic, heavy, torrential and causes destruction. The rainfall occurs during December to February is cyclonic, light and beneficial.

- (c) (i) Kerala lies on the Malabar Coast and on the windward side of the South-West Monsoon winds. As the Western Ghats obstruct the monsoon winds, it causes very heavy monsoon rainfall for a long duration along this coast.

(ii) Orographic rainfall is mainly caused by the presence of a relief barrier. The Konkan coast comprises a part of the Western Ghats which obstructs the onshore Arabian Sea branch of the South-West monsoon winds. This causes heavy rainfall on the western slopes of the Western Ghats which comprises the windward side of the Konkan coast. While the Eastern slopes receive less rainfall resulting in a rain shadow area. Hence, the Konkan coast receives orographic rainfall due to the influence of the Western Ghats.

(iii) Kanpur has an interior location while Chennai has a coastal location. The areas in the interior of the country have an extreme type of climate resulting in high annual range of temperature while the coastal areas have a moderate climate. This is mainly due to the influence of land and sea breeze caused by differential heating and cooling of land and sea. Therefore, Kanpur has a higher range of temperature than Chennai.

- (d) (i) Hottest month is May.
(ii) Total annual rainfall is 131.9 cm.
(iii) Retreating Monsoon

Answer 4.

- (a) (i) Black soil is suitable for crop cultivation as it is clayey in nature and has high water holding capacity. Moreover, it is rich in lime, iron, magnesium, and is fertile in nature.
(ii) Red soil is suitable for crop cultivation as it is rich in potash and iron. Red soil responds well

to irrigation and fertilizers, and can thus be made suitable for crop cultivation.

- (b) (i) Leaching (ii) Gully erosion
(c) (i) Pedogenesis refers to the process of soil formation. Soils are derived by the weathering of parent rock materials which combine with decomposed vegetal and animal remains which adds to the fertility of the soil.
(ii) Humus refers to the organic matter present in the soil. It mainly comprises dead and decomposed plant and animal remains, which adds to the fertility of the soil.
(iii) Bhangar refers to the old alluvial soil found about 30 m above sea level in river terraces. It is light grey in colour and consists of calcareous clay.
(d) (i) Alluvial soil is extremely fertile because it is rich in various minerals such as potash, humus and lime. Moreover, it is clayey in nature and has high water holding capacity. This makes it suitable for the cultivation of various types of crops.
(ii) Soil conservation is necessary as the removal of the top soil layer results in loss of fertility, decreasing soil moisture, drying of vegetation and increase in the frequency of floods and droughts.
(iii) Reafforestation should be practiced extensively in order to compensate for the large scale deforestation occurring because of industrialisation and other factors, which would certainly result in soil erosion and land degradation.

Answer 5.

- (a) Two characteristics of Tropical Deciduous forests are :
(i) The trees shed their leaves for 6-8 weeks in the hot weather season.
(ii) The trees occur in pure stands.
(b) Tropical Evergreen forests are difficult to exploit due to the following two reasons :
(i) The forests are dark and dense multilayered and the forest floor is covered with shrubs and undergrowths. This makes the exploitation difficult.
(ii) Moreover, the trees do not occur in pure stands and are of hard wood variety, making it difficult to carry.
(c) (i) Deodar (ii) Sundari (iii) Mahogany
(d)

| Afforestation | Deforestation |
|---|---|
| It is the planting of trees in abandoned areas, or any other suitable place, in order to improve our environment. | It is the process of cutting down of trees for various purposes like, industrialisation, colonisation, etc. |

Disadvantages of deforestation :

1. Loss of flora and fauna.
2. Loosening of soil particles which eventually results in soil erosion and surface water run-off.
3. Increase in temperatures/floods.
4. An imbalance is generated amongst the soil minerals, and the soil loses its fertility and mineral content.

(Any one)

Answer 6.

- (a) Irrigation is important in India due to the following reasons :

(i) Monsoon rainfall is uncertain and unevenly distributed in India. Thus, irrigation becomes necessary in areas of low and scanty rainfall.

(ii) Different types of crops are grown in India which have varying water requirement. Crops like rice, wheat, sugarcane and jute need more water than other crops. This makes irrigation necessary.

- (b) Two modern methods of irrigation are drip irrigation and sprinkler irrigation.

In the conventional methods of irrigation, a large quantity of water is wasted due to water logging and often results in gradual salinity of the soil. This has made the modern methods of irrigation more popular.

- (c) (i) Well irrigation is a popular method of irrigation due to the following reasons :

1. Wells can be dug very easily in areas of soft soil.

2. By the use of pumps and tubewells, water can be lifted even from great depths.

(ii) The significance of rainwater harvesting is as follows :

1. This method helps to raise the groundwater table by recharging of groundwater reserves.

2. It helps to reduce surface run-off and avoid flooding.

- (d) (i) The world is in danger of facing an acute water crisis due to the following reasons :

1. The rapid increase in the world population has resulted in over exploitation of underground water in order to meet the increased demand for fresh water supply.

2. Irrigation utilises more than 90% of total fresh water supply. Besides, the demand for industrial use will increase in the near future which will add to the water scarcity problem.

(ii) The Government should undertake proper water harvesting methods that promote reuse and recycling of water to reduce water scarcity problem.

Answer 7.

- (b) (i) Iron ore is mainly used to make steel. Raw iron is alloyed with other elements to make good quality steel which is used for construction, automobiles, and other forms of transportation, etc.

(ii) Bauxite is the main source of aluminium which is light weight, strong and rust resistant. Aluminium is mainly used for making automobiles, aircrafts, wagons, coaches, shipping industry, etc.

- (c) (i) Mathura (ii) Jharkhand
(iii) Magnetite

- (d) (i) Many port cities have their own oil refineries as the location of the oil refineries near the coast minimizes the cost of transport and also reduces the risk of transporting the oil inside the country due to its inflammable nature.

(ii) Petroleum is formed by the accumulation of vegetative matter. This vegetative matter when subjected to heat and pressure results in physical and chemical changes due to the increasing weight of the overlying layers of sediments and earth movements. Moreover, petroleum is the basic source of energy. Thus, it is known as a fossil fuel.

(iii) Coal is known as a versatile mineral due to its varied uses :

1. It is used as a source of power for running machines, trains, ships, etc.
2. It is used in manufacturing steel.
3. Various by-products of coal such as ammonia, benzol, etc., are manufactured from coal.

Answer 8. (a)

| Rabi crops | Kharif crops |
|---|---|
| (i) They are sown in October-November and are harvested in March-April. | They are sown in June-July and are harvested in October-November. |
| (ii) The crops mainly include wheat, barley, gram, mustard, etc. | It includes crops like rice, jowar, bajra, sugarcane, etc. |

(b)

| Basis | Cotton | Jute |
|------------------------|-------------------------------------|---|
| (i) Climatic condition | Bright sunny weather condition. | Hot and humid condition. |
| (ii) Temperature | 20°C-32 °C | 21°C-35 °C |
| (iii) Rainfall | Moderate rainfall from 50cm-120 cm. | The annual rainfall should be more than 150 cm. |

- (c) (i) Ratooning (ii) Oil cake

- (d) (i) Tea plants require well drained soils. The hill slopes are ideal for tea plantations as the rolling hill slopes prevent water logging.
 (ii) The yield per hectare of sugarcane is higher in the Southern states due to the availability of better quality of the crop, presence of maritime climate free from the effect of summer loo and winter frost, sufficient irrigation and newer farming techniques.
 (iii) Pulses are important food crops as they consists of many crops which are leguminous and rich in protein. Thus, they are considered an important part of vegetarian diet.

Answer 9.

- (a) (i) Cotton textile industry is considered as an agro-based industry, as the industry depends on the raw material produced by the agricultural sector.
 (c) (i) Two problems faced by the sugar industry are as follows :
 1. The sugarcane cultivated in India is of poor quality and have low sucrose content.
 2. The cost of production is quite high because of the inefficient and uneconomic nature of production.
 (ii) Two by-products of sugar industry are molasses and bagasse.
 (d) (i) The main problem faced by the silk industry is the stiff competition from artificial silk, which is cheaper than raw silk. Moreover, import of cheaper quality silk from China adds to the problem.
 (iii) Synthetic fibres are cheaper and more durable, thus, they are more popular.

Answer 10.

- (a) (i) Iron and steel industry is known as the basic industry as it forms the backbone of the modern industries. It is used to manufacture industrial machinery, railway tracks, dams, etc., which helps in industrialisation and economic development of the country.
 (ii) Mini steel plants usually have smaller operational units as compared to the integrated steel plants. They use cheaply available scrap iron in electric furnaces, which cater the local market, and hence, produce fewer items like stainless steel, alloy steel, etc.
 (b) (i) Kanpur – Sugar industry
 (ii) Rourkela – Iron and steel plant
 (iii) Pune – Cotton textile industry
 (iv) Mangalore – Oil refining
 (c) (i) The reasons for the growing importance of the petrochemical industry are as follows :
 1. The petrochemical products do not depend on agricultural raw materials, hence, there is no fluctuation in production due to climatic factors.
 2. The petrochemical products like plastics, PVC pipes, synthetic fibres are cheaper and more durable.
 (ii) Two products are plastics and PVC pipes.

- (d) (i) Two conditions required for setting up of a heavy engineering industry are as follows :
 1. Availability of heavy and bulky raw materials like iron ore.
 2. Large capital investment.
 (ii) Ship-building yard on East coast of India - Vishakhapatnam
 Electric locomotives centre - Chittaranjan.

Answer 11.

- (a) (i) Railways are an important means of transport as compared to air transport because railways can carry large number of people and transport heavy and bulky goods over a long distance.
 (ii) The Golden Quadrilateral Project helps in the transport of agricultural products from hinterlands to major cities and ports. This promotes agricultural as well as industrial growth.
 (b) (i) One major difference between a highway and an expressway is that a highway is a high speed road connecting two or more cities, while an expressway is a very high speed highway that has limited or controlled access for two wheelers and three wheelers, but has features like lane dividers and access ramps to provide a pleasing motoring experience at high speed to motorists.
 (ii) Ahmedabad-Vadodara Expressway is the first expressway of India.
 (iii) The Northern rivers are more suitable for navigation than the Deccan rivers as the former has a perennial flow while the latter has seasonal flow of water. Moreover, the presence of water falls, sharp bends, etc., also hampers the navigation in case of the Deccan rivers.
 (c) (i) Segregation of wastes according to the methods of treatment is necessary for proper waste management. Thus, wastes are separately collected in different bins for biodegradable and non-biodegradable products.
 (ii) Radioactive elements are considered harmful because exposure to these radioactive elements can cause serious health problems. Since, radioactive elements remain active for a long time, therefore, it can enter human body through food, fish and water which are already affected. These radioactive accumulations further damage tissues, blood cells and cause cancer.
 (iii) Generation of wastes can be reduced by reducing, recycling and reusing of wastes known as 3Rs.
 (d) (i) Biodegradable wastes are easily broken down by natural processes of decomposition. E.g., leaves, plant remains, etc.
 (ii) Gaseous waste exhausts from vehicles/ burning of fossil fuels in factories and thermal power plants/ burning of wheat or rice straw/ methane from cattle sheds.

(Any one)

QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the Survey of India Map Sheet No. 45D/10 and answer the following questions :

- (a) (i) Give the four figure grid reference of the settlement of Hamirpura.
(ii) Give the six figure grid reference of the temple in the settlement of Jolpur. [2]
- (b) (i) What does the blue coloured circle in the grid square 0619 represent?
(ii) What is the compass direction of Dantrai from Jolpur ? [2]
- (c) What is the difference between :
(i) The pattern of settlements in 0725 and the settlement of Idarla ?
(ii) The drainage pattern of the streams in 0624 and those in 0824 ? [2]
- (d) What is the value of the contour line in square 0226 ? What is the contour interval in the map ? [2]
- (e) Mention any two factors which provide evidence that the region in the map extract is a rural region. [2]
- (f) (i) How does the feature, indicated by the black curves in 0721, show that rainfall in this region is seasonal?
(ii) Mention one man-made feature in the map which also provides evidence that the rainfall is seasonal. [2]
- (g) (i) Name two natural features in 0527.
(ii) Name two man-made features in 0325. [2]
- (h) Name two features which make Dantrai a more important settlement than the other settlements in the map extract. [2]
- (i) Calculate the area of the region which lies to the south of northing 21 in square kilometers. [2]
- (j) What are the following ?
(i) The black vertical line between eastings 09 and 10.
(ii) 302 in grid square 0425. [2]

Question 2.

On the outline map of India provided :

- (a) Draw, name and number the Standard Meridian. [1]
- (b) Label the river Yamuna. [1]
- (c) Shade and name the Gulf of Khambhat. [1]
- (d) Mark and name the Nathu-La Pass. [1]
- (e) Mark and name the Karakoram Range. [1]

- (f) Shade and name a sparsely populated State in North-east India. [1]
- (g) Shade a region with laterite soil in Eastern India. [1]
- (h) Mark with a dot and name Vishakhapatnam. [1]
- (i) Mark and name the winds that bring rain to West Bengal in summer. [1]
- (j) Print S on the iron mines in Singhbhum. [1]

PART—II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) Mention the different sources of rain in Punjab and Tamil Nadu during the winter season. [2]
- (b) State the benefits that are derived from the local winds that blow in summer in the following states :
(i) Kerala (ii) West Bengal [2]
- (c) Mention a geographical reason for each of the following:
(i) Patna receives heavier rain than Delhi.
(ii) Western Rajasthan receives no rain from the Arabian Sea branch of the South-West Monsoon winds.
(iii) Mangalore is not cold even in the month of December. [3]
- (d) Study the climatic data given below and answer the questions that follow :

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 25.0 | 25.5 | 26.3 | 27.1 | 30.0 | 36.2 | 36.0 | 35.9 | 30.3 | 28.4 | 27.0 | 24.6 |
| Rainfall cm | 24.5 | 23.1 | 15.0 | 2.4 | 0.1 | 11.0 | 9.3 | 7.2 | 4.0 | 9.4 | 14.5 | 20.4 |

- (i) Calculate the annual temperature range.
- (ii) What is the total annual rainfall ?
- (iii) Presuming that the station is located in India, give a reason for its location being on the east coast or the west coast of India. [3]

Question 4.

- (a) State any two methods of controlling soil erosion. [2]
- (b) Mention two differences between alluvial soil and red soil. [2]
- (c) Give a geographical reason for :
(i) different regions in India having different kinds of soil.

- (ii) black soil being suitable for growth of cotton.
 (iii) the conservation of soil as a natural resource. [3]
 (d) Name the soil which :
 (i) is good for the cultivation of cashew nuts.
 (ii) covers almost all of West Bengal.
 (iii) is a result of leaching. [3]

Question 5.

- (a) Write two reasons why monsoon deciduous forests are commercially more valuable than other types of forests. [2]
 (b) How do forests :
 (i) have a favourable effect on the climate of the region ? [2]
 (ii) act as a flood control measure ?
 (c) Give one important use of each of the following types of trees :
 (i) Sundri (ii) Sandalwood
 (iii) Rosewood. [3]
 (d) Name the natural vegetation largely found in the following regions :
 (i) The delta of the Ganga river.
 (ii) The windward side of the Western Ghats.
 (iii) The Deccan Plateau. [3]

Question 6.

- (a) State two reasons why tank irrigation is popular in South India. [2]
 (b) Mention two advantages that surface wells have over inundation canals. [2]
 (c) Give one geographical reason for each of the following statements :
 (i) Irrigation is necessary despite the monsoon.
 (ii) The drip method of irrigation is the best among all modern methods of irrigation.
 (iii) Canal irrigation leads to the ground around it becoming unproductive. [3]
 (d) Give three reasons for conservation of water resources. [3]

Question 7.

- (a) Mention any two uses of manganese. [2]
 (b) Which of the different varieties of coal is used for domestic purposes and why ? [2]
 (c) Name the mineral used in the manufacture of :
 (i) Cement** (ii) Aluminium
 (iii) Synthetics.** [3]
 (d) Which state is the leading producer of the following minerals ?
 (i) Coal (ii) Oil
 (iii) Manganese. [3]

Question 8.

- (a) How has poverty and fragmentation of land become problems of agricultural India ? [2]
 (b) Mention any two features of plantation farming by stating two examples. [2]
 (c) Mention three differences in the geographical conditions and cultivation of rice and wheat. [3]
 (d) Give a geographical reason for each of the following :
 (i) Cotton grows widely in Maharashtra.
 (ii) Clonal planting is the best method for tea propagation.
 (iii) Oilseeds are an important commercial crop grown in India. [3]

Question 9.

- (a) Name two textile industries using any animal fibres. Name an important state where these industries are located. [2]
 (b) Give two reasons for each of the following :
 (i) Kolkata is an important cotton manufacturing centre even though West Bengal is not a leading producer of cotton.
 (ii) The wool industry is not as well developed as compared to the cotton industry in India.** [2]
 (c) Mention three problems of the jute textile industry in India.** [3]
 (d) Mention three factors that have helped the sugar industry flourish in the peninsular region rather than in the northern regions of India. [3]

Question 10.

- (a) Name one integrated iron and steel plant in the private sector. Where does it obtain its iron and coal from ? [2]
 (b) Name two raw materials used in the petrochemical industry and state two advantages of petrochemical products. [2]
 (c) Give a reason for each of the following :
 (i) Vishakhapatnam is a leading centre for ship-building.
 (ii) Mini steel plants cause less pollution than integrated steel plants.
 (iii) The electronic industry has made an impact on both entertainment and education. [3]
 (d) Name a manufacturing centre for each of the following industries :
 (i) Engines for MIG aircraft
 (ii) Diesel locomotives
 (iii) Software [3]

Question 11.

- (a) Why is road transport in India considered more useful than rail transport ? State two reasons in support of your answer. [2]

** Answer is not given due to change in the present syllabus.

- (b) Mention one advantage and one disadvantage each of inland waterways. [2]
- (c) How does waste accumulation affect the environment? [3]
- (d) What is acid rain? Mention two of its effects. [3]

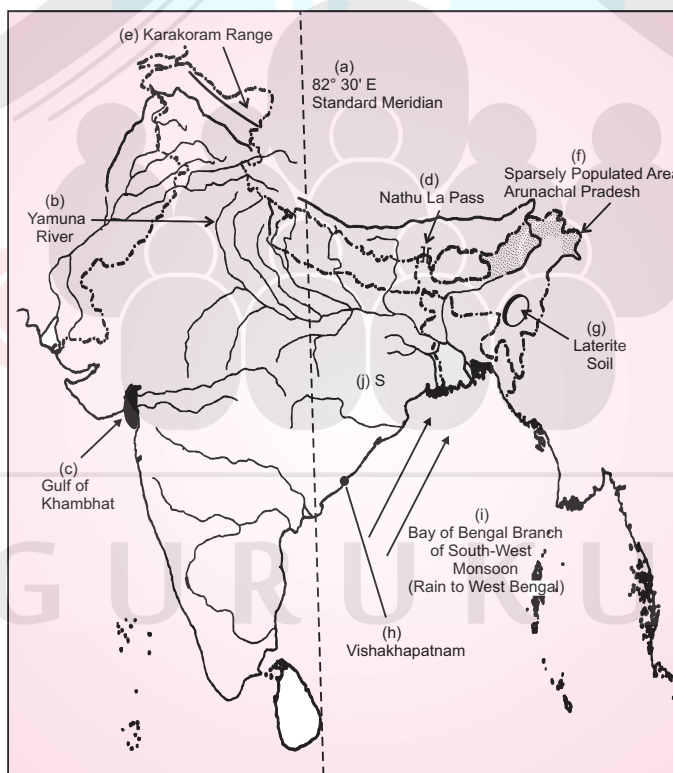
ANSWERS

PART-I

Answer 1.

- (a) (i) 0123 (ii) 0781887
- (b) (i) Perennial lined well (though the circle is not given in the map)
(ii) Towards north-west
- (c) (i) Settlement in 0725—Dispersed.
Settlement Idarla—Nucleated.
(ii) Drainage of 0624—Trellised.
Drainage of 0824—Dendritic.
- (d) 300 meters above mean sea level.
Counter interval—20 meters.
- (e) No large settlement, no metalled road.
- (f) (i) The black curves line in 0721 is broken ground.
- Broken ground is formed due to alternating dry and wet periods along with the banks of seasonal river where the soil is soft.
- (ii) Large number of lined perennial wells.
- (g) (i) At 0527, the natural features are seasonal stream, trees and barren land.
(ii) Cart track and permanent settlement.
- (h) The settlement Dantrai has a police chowki and post office. Other settlements do not have them.
- (i) Length—19.5 cm → 9.75 km
Breadth—6 cm → 3 km
(as per Scale 2 cm to 1 km)
Area = $9.75 \times 3 = 29.25$ sq. km
- (j) (i) Line of Longitude
(ii) 302 in grid square 0425 is a spot height.

Answer 2.



PART-II

Answer 3.

- (a) Punjab receives rainfall due to the western disturbances that originate over the Eastern Mediterranean Sea during the winter season.
Tamil Nadu receives rainfall from the North-East Monsoon winds during the winter season.
- (b) (i) Kerala : The local wind is called Mango Showers. They bring little rain in April and May, which is helpful in the early ripening of mangoes, tea and coffee plants.
(ii) West Bengal : The local wind is called Nor' westers or Kalbaisakhi. The rain is useful for rice and jute in West Bengal.

- (c) (i) Patna receives heavier rain than Delhi because the Bay of Bengal branch of South-West Monsoon sheds its moisture goes up the Ganga plain. As it proceeds up the Ganga valley, the amount of rainfall keeps decreasing East to West. Since Patna is located to the East of Delhi, it receives 102 cm of rainfall while Delhi gets 50 cm of rainfall, annually.

(ii) The Arabian Sea branch of South-West Monsoon strikes the Saurashtra peninsula and passes over the Western Rajasthan, parallel to the Aravalli range. It hardly causes any rain in the Western Rajasthan because it undergoes thermal heating on blowing over the hot sands and gets unsaturated. As the area lies on the leeward side of the Aravalli range, no rain is caused.

(iii) Mangalore is located at the south of Tropic of Cancer along the Western Coast of India and enjoys the moderating influence of land and sea breeze throughout the year. The climate over there being equable or maritime type, the place does not experience any winter.

- (d) (i) Annual Range of temperature = $36.2^{\circ}\text{C} - 24.6^{\circ}\text{C} = 11.6^{\circ}\text{C}$.

(ii) Total Annual Rainfall = $24.5 + 23.1 + 15.0 + 2.4 + 0.1 + 11.0 + 9.3 + 7.2 + 4.0 + 9.4 + 14.5 + 20.4 = 140.9 \text{ cm}$

(iii) The station is located on the East coast of India because heavy rainfall is observed in winter season.

Answer 4.

- (a) (i) Terrace farming.
(ii) Planting shelter belts to check the speed of wind in the dry areas.

| (b) | Alluvial Soil | Red Soil |
|------|---|--|
| (i) | Alluvial soil is transported soil. | Red soil is residual (in situ) soil. |
| (ii) | Alluvial soil is highly moisture retentive and fertile. | Red soil is not highly moisture retentive and infertile. |

- (c) (i) Factors affecting soil formation are climate, vegetation, parent rock, relief and slope of the land. India has varied relief features, landforms, climatic realms and vegetation types. These have led to the development of a variety of soils in the country.

(ii) Black soil contains lime, alumina, iron, potash, magnesium and calcium, and also retains moisture which helps the growth of cotton plants.

(iii) As the soil helps us to get most of our food and clothing directly or indirectly and also ensures

agricultural prosperity of a country, availability of soil is most critical. Retaining of this valuable resource by way of soil conservation is important and essential.

- (d) (i) Laterite soil (ii) Alluvial soil
(iii) Laterite soil

Answer 5.

- (a) The monsoon deciduous forests are commercially more valuable because :

(i) They are found in pure stands.

(ii) They are not as dense as the tropical evergreen forests.

(iii) They yield valuable timber.

- (b) (i) Forests transmit moisture into the air by the means of transpiration and induce precipitation. Forests turn carbon dioxide into oxygen and thus help to purify the air we breathe.

(ii) The roots of plants and trees hold the soil and thus forests check or prevent soil erosion, especially in hilly areas. Hence, they also help in checking floods.

- (c) (i) Sundari trees are ideal for building boats as they are hardwood, light weighted and durable.

(ii) Sandalwood is a fragrant wood which is used to make incense sticks, decorative articles and oil. The oil is added to cosmetics, bathing soaps, etc.

(iii) Rosewood is termite resistant, and is used for making expensive furniture and carvings.

- (d) (i) Mangrove or littoral forests

(ii) Tropical evergreen forests.

(iii) Monsoon deciduous forests.

Answer 6.

- (a) The reasons for the popularity of tank irrigation in South India are as follows :

(i) There is little percolation of rainwater due to hard rock structure of Deccan Plateau and ground water is not available in large quantity.

(ii) Most of the rivers of this region are seasonal and dry up in summer season. Therefore, they cannot supply water to canals throughout the year.

- (b) Surface wells are an independent source of irrigation. They may be used when the necessity arises.

Two advantages that they have over inundation canals are :

(i) Wells are simplest and cheapest source of irrigation, can be dug at any convenient place. While inundation canals are dug at places close to water bodies.

(ii) Inundation canals are 'floodwater' canals and have water in them only when the river is

flooded during the rainy season. While wells are a perennial source of water.

- (c) (i) Indian monsoons are the most uncertain. Late arrival or early withdrawal of the monsoon affects crop production severely. Only irrigation can provide security to agriculture from such irregularity.
 (ii) The drip method of irrigation does not involve any loss of water by seepages because water is supplied through pipes. No water is lost by evaporation because water is supplied directly onto the roots of the plants.
 (iii) Excessive flow of water in the fields raises the ground water level. Capillary action brings alkaline salts to the surface and makes large areas close to the canals unfit for agriculture.
- (d) Conservation of water resources has become essential because :
- (i) The increase in population with the progress of time results in water scarcity.
 (ii) Our water resources like the rivers, lakes etc., are polluted and their water can hardly be used without adequate treatment.
 (iii) The water demand for industrial use is increasing day by day.

Answer 7.

- (a) (i) Manganese is used to increase the strength of Steel in iron and steel industry.
 (ii) It is also used as raw material for manufacturing paints, glass wares, insecticides, bleaching powder and dry cell batteries.
- (b) Bituminous coal is used for domestic purposes as its carbon content is high and emits less smoke.
- (c) (ii) Aluminium : Bauxite
- (d) (i) Coal : Jharkhand
 (ii) Oil : Maharashtra.
 (iii) Manganese : Orissa (Odisha).

Answer 8.

- (a) Inheritance laws in the country have led to a continuous fragmentation of land over the years reducing the size of the land holdings. Farm fragmentation reduces the size of farm on which it is not possible to use harvesters or other farm machinery. This results in the large scale wastage of fertile land and labour, and they become uneconomic for any useful agricultural activity.
- (b) (i) A single crop is grown on a large estate with modern and scientific techniques mainly for trade.
 (ii) It is a labor intensive method of farming and requires excellent managerial skills, technical know-how and huge capital investment. *Example* : Tea, Coffee, Coconut, Rubber, etc.

| | Rice | Wheat |
|-------|---|---|
| (i) | It is a Kharif crop sown in June and harvested in October. | It is a Rabi crop sown in October-November and harvested in March-April. |
| (ii) | During ripening stage the temperature should be 18°C-32°C. Mean temperature should be 24°C. Rice needs more than 150 cm of annual rainfall. | Wheat needs a temperature of about 10°C-15°C during the period of growth and 20°C-25°C during harvest. About 50 cm – 100 cm annual rainfall is ideal. |
| (iii) | Harvested by hand. | Harvesters are used. |

- (d) (i) Cotton plant needs 21°C to 30°C of temperature, at least 200 frost free days and 50–80 cm of rainfall, well distributed during the period of growth. Abundant sunshine and no rain is required during ripening and picking period. Since, Maharashtra has black soil and all the required climatic conditions as stated above, so cotton grows well in Maharashtra.
- (ii) Cuttings are taken from a tea plant called the 'mother plant', known for its better yield, special flavour and quality. They are grown so as to produce tea shrubs yielding the same superior quality of tea. Thus, clonal planting is the best method for the tea propagation.
- (iii) Oil is extracted in mills or in village ghanis which provide employment to 10 million people both in rural and urban areas. India exports oil. 20% vegetable oil is consumed by the industry to make paints, varnishes, lubricants and seasoning wood. Oil is exported to earn foreign exchange.

Answer 9.

- (a) Silk textile industry.
 An important state for silk textile industry is Karnataka.
- (b) (i) The hot and humid climate of Kolkata facilitates the spinning of yarn of finer cotton. It has soft water from river Ganga for bleaching and dyeing, sufficient power supply, cheap labour and excellent means of transportation.
- (d) The geographical conditions are more suitable in the peninsular region than in North India for the cultivation of sugarcane because of the following factors :
- (i) The crushing season is longer and mills are near the plantations in the peninsular region and

so there is no loss of sucrose. In North India, it is seasonal in character as sugarcane is available only at the time of harvest and the crushing season is short. So, there is increase in cost of production.

(ii) The sugar industry is better organised in the peninsular region as the mills are better managed in the cooperative sector, factories are closer to the centre of large consumption. This lowers the transport costs and overall prices. In North India, there are great distances between the factories and the fields which causes increase in the cost of production.

(iii) The outmoded and worn-out machinery of North Indian mills leads to low milling efficiency and wastage. The mills in peninsular India are new, efficient and very large.

Answer 10.

(a) Tata Iron and Steel Company : It obtains iron ore from Singhbhum in Jharkhand and Mayurbhanj, and Bonai in Odisha. Coal is secured from Jharia in Jharkhand.

(b) Naphtha, Propylene, Ethylene and Benzene are the raw materials used in the petrochemical industry.

Advantages : (i) They are durable and cheaper.

(ii) They are not dependent on agricultural raw materials. Hence, there is no fluctuation in production due to climatic factors.

(c) (i) Hindustan Shipyard at Vishakhapatnam is a leading ship-building centre of deep navigable water off the coast, with an excellent transport network, technical know-how, availability of steel and demand for the ships, gets its iron and steel from VISL, power from Nagarjuna Sagar Dam, labour from Andhra Pradesh and Odisha.

(ii) Mini steel plants work through electric furnaces causing less pollution, whereas the integrated steel plants use blast furnaces where coking coal are fed continuously to melt the iron ore, causing huge pollution.

(iii) Electronic industry with mass scale integration process has produced computers, servers, displays, TVs and cameras, telephone exchanges,

etc., to enable capture and broadcast news, advertisements, cinema, educational programs, etc., to large section of the population over the country and overseas, thus, revolutionising the lifestyle of the Indian masses.

(d) (i) Engines for MIG air craft—Koraput in Odisha.

(ii) Diesel locomotives—Chittaranjan in West Bengal/Varanasi in Uttar Pradesh.

(iii) Software—Bengaluru in Karnataka.

Answer 11.

(a) (i) Road transport is more flexible than rail as buses, trucks and cars may be stopped anywhere and at any time for passengers and goods, whereas trains stop at stations only.

(ii) Road transport provides door to door service. Roads can negotiate high gradients and sharp turns to reach at almost all areas, whereas trains cannot do the same. Roads can be constructed in hilly areas also.

(b) **Advantage :** Inland waterways are the cheapest means of transport and suitable for carrying heavy and bulky materials.

Disadvantage : Water transport is limited to the areas where rivers are navigable and oceanic routes exist.

(c) (i) Waste accumulation pollutes air, water and soil.

(ii) It degenerates the landscape, and chokes the drainage system.

(iii) It creates health problems like cholera, dysentery, typhoid, etc., due to growth of bacteria in the water.

(d) Acid rain is the result of excessive acids in rainwater which are formed when oxides like nitrogen dioxide and sulphur dioxide react with water.

Two effects of acid rain are :

(i) It is largely responsible for scarring buildings, monuments, corroding metals and damaging vegetation.

(ii) It makes water in the lakes and wetlands acidic and makes them toxic for aquatic life.



QUESTIONS

PART-I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the Survey of India Map Sheet No. 45D/7 and answer the following questions :

- (a) Give the six figure grid reference of : [2]
 - (i) Triangulated height 217
 - (ii) A lined well near Chekhla.
- (b) (i) Name the left bank tributary of the main river. [2]
 - (ii) State the direction in which this left bank tributary is flowing.
- (c) (i) Mention a special feature associated with the streams in grid square 9879. [2]
 - (ii) Name the types of drainage pattern found in grid square 9382.
- (d) Give the four grid reference of each of the following : [2]
 - (i) Open scrub
 - (ii) Bantawada.
- (e) Name two relief features that can be seen in grid square 9782 and 9574. [2]
- (f) Why do you find limited cultivation in the map extract? Give two reasons for your answer. [2]
- (g) What is the compass direction of Atroli (9576) and Chekhla (9281) from Sangla ? [2]
- (h) What type of rainfall is experienced in the region shown in the map extract? Justify your answer by giving one reason. [2]
- (i) Calculate the distance in kilometres along the cart track between Chitrasani (999747) and Pirojpura (978753). [2]
- (j) (i) What is the geographical name that you would give to the general pattern of settlements in the region shown on the map ? [2]
 - (ii) Name one region shown on the map which is unsuitable for the cultivation of crops.

Question 2.

On the outline map of India provided :

- (a) Mark and name Chennai. [1]
- (b) Label the river Godavari. [1]
- (c) Shade and label the Chota Nagpur Plateau. [1]
- (d) Shade and name the Gulf of Kachchh. [1]
- (e) Mark and name the Indo-Gangetic Plains. [1]
- (f) Shade and label an area with Red Soil. [1]
- (g) Mark and name the winds which bring rain to Mumbai in July and August. [1]

- (h) Mark and name the Satpura Range. [1]
- (i) Mark and name the Jharia Coal Field. [1]
- (j) Shade and label the Northern Circar coastal region. [1]

PART—II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) Name two types of cyclonic systems that affect India and two areas that receive rainfall from these systems. [2]
- (b) Give two important characteristics of the South West Monsoon rainfall. [2]
- (c) Give reasons for the following :
 - (i) When the Malabar coast is receiving heavy rainfall in July, the Tamil Nadu coast is comparatively dry.
 - (ii) The Northern Plains of India have a Continental type of climate.
 - (iii) Central Maharashtra receives little rainfall. [3]
- (d) Study the climatic data given below and answer the questions that follow :

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|-----|------|------|------|-------|------|------|------|
| Temp. °C | 23.1 | 24.8 | 26.5 | 29.3 | 32 | 32.8 | 33.1 | 32.1 | 30.5 | 29.3 | 28.7 | 26.1 |
| Rainfall cm | 15.3 | 10.1 | 0.3 | 0.1 | 1.3 | 4.5 | 6.1 | 10.2 | 10.5 | 20.1 | 16.8 | 19.0 |

- (i) Calculate the annual rainfall experienced by the station.
- (ii) Suggest a name of this station, giving a reason for your answer.
- (iii) Name the season during which the rainfall is heaviest. [3]

Question 4.

- (a) Differentiate between Transported soil and In Situ soil, quoting a suitable example for each. [3]
- (b) State two differences between Bhangar and Khadar. [2]
- (c) Name the process by which Laterite soil is formed. Mention one disadvantage of this soil. [2]
- (d) With reference to Red soil in India, answer the following questions :
 - (i) Name two states where it is found.
 - (ii) State two advantages of this type of soil.
 - (iii) Mention two important crops grown in this soil. [3]

Question 5.

- (a) Mention two main characteristics of Tropical Rain Forests. [2]
- (b) Name the tree, the timber of which could be used for the following :
 (i) A soft and white timber used for making toys and match boxes.
 (ii) A hard durable timber used for ship building and furniture making.
 (iii) A sweet smelling timber which yields an oil, used for making handicrafts. [3]
- (c) (i) Name one region in India for each of the following:
 (1) Tidal forests. (2) Thorn and Shrubs.
 (ii) Explain why Thorn and Shrubs forests are found in the above mentioned region. [3]
- (d) Briefly explain two reasons for forests being an important natural resource. [2]

Question 6.

- (a) Name two states in which tube wells are extensively used. Give a reason to explain its importance as a source of irrigation. [2]
- (b) Give two main reasons why water scarcity occurs in India. [2]
- (c) (i) Name two states where perennial canals are widely used.
 (ii) Briefly explain two reasons for perennial canals being a popular form of irrigation in the named states. [3]
- (d) (i) Name two methods of water harvesting in India.
 (ii) Mention any two objectives of rainwater harvesting. [3]

Question 7.

- (a) Name the ore of aluminium. Describe two main uses of aluminium. [2]
- (b) Name any two industrial products for which limestone is used as a source of raw material. [2]
- (c) (i) Name two industries that use a high quantity of coal.
 (ii) Name one important area that has large coal deposits in the states of Jharkhand and West Bengal. [3]
- (d) (i) Which state is the largest producer of mineral oil ?
 (ii) Name two coastal and two inland oil-refineries in India. [3]

Question 8.

- (a) Distinguish between Intensive commercial farming and Extensive commercial farming. [2]
- (b) With reference to rice cultivation, answer the following:
 (i) Name two leading states in the production of rice.
 (ii) Give two advantages of growing rice in nurseries. [2]

- (c) (i) Name two states where coffee plantations are found.
 (ii) What conditions of soil and climate are favourable for the cultivation of coffee ? [3]
- (d) Explain in brief the following :
 (i) Retting. (ii) Ginning.
 (iii) Broadcasting. [3]

Question 9.

- (a) Name any two large sugar producing states, one each in North and South India. [2]
- (b) Name an agro-based industry based in the following industrial centres :
 (i) Ahmedabad (ii) Mysore. [2]
- (c) State three favourable conditions responsible for the growth of the jute industry in West Bengal.** [3]
- (d) Give geographical reasons for the following :
 (i) The woollen industry is a localized industry in India.**
 (ii) It is necessary to crush sugarcane within 24 hours of harvesting.
 (iii) Sericulture flourished in Karnataka. [3]

Question 10.

- (a) (i) What is the significance of the Electronics Industry in recent times ?
 (ii) Name two cities that have leading Software Companies. [2]
- (b) Name the steel plants that were set up with Russian collaboration. [2]
- (c) Explain three reasons as to why there is a large concentration of iron and steel plants in the Chota Nagpur Region. [3]
- (d) What industrial products are the following centres noted for ?
 (i) Gurgaon (ii) Perambur
 (iii) Chittaranjan. [3]

Question 11.

- (a) Give one disadvantage of air transport. Why is it still a popular means of transportation in India ? [2]
- (b) (i) Give two reasons why peninsular rivers are not ideal for navigation.
 (ii) Name a port on the east coast which is often hit by cyclones during the months of October and November. [3]
- (c) (i) State the main objective of the treatment of gaseous waste. [1]
 (ii) Name two common diseases caused as a result of gaseous pollution. [1]
- (d) What was the cause of the following ?
 (i) The Bhopal Tragedy.
 (ii) The Minamata Disease.
 (iii) The Chernobyl Disaster. [3]

** Answer is not given due to change in the present syllabus.

ANSWERS

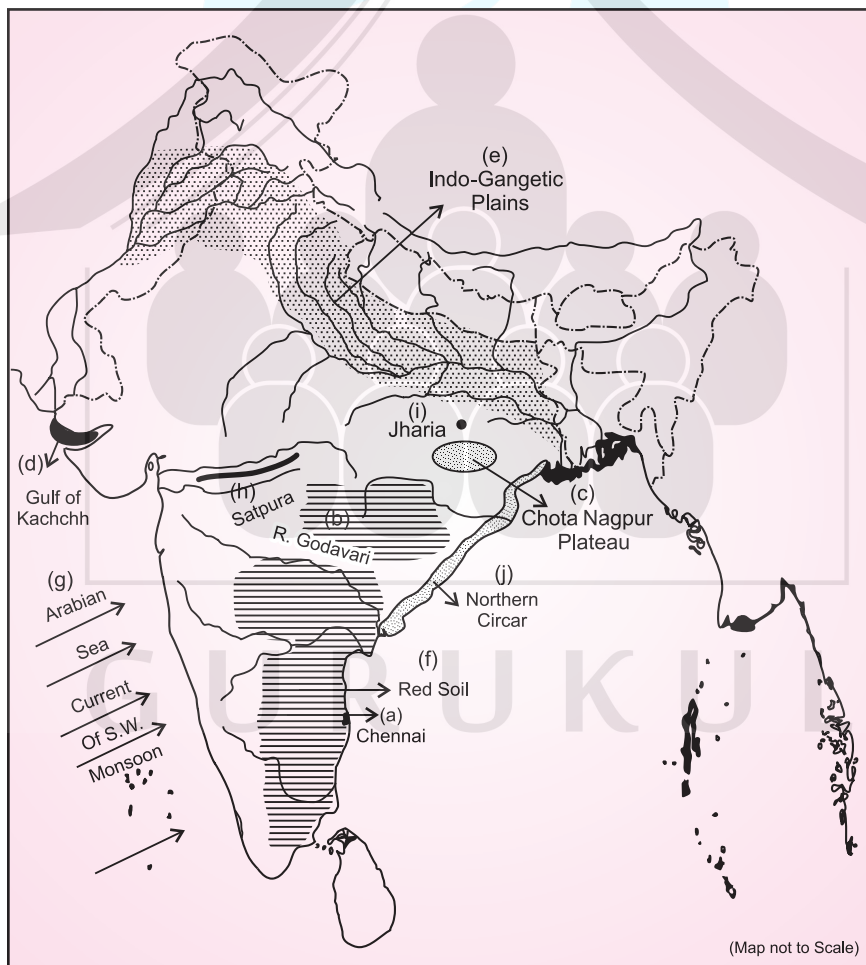
PART-I

Answer 1.

- (a) Six figure grid reference :
 (i) Δ 217 – 940793 (ii) lined well – 929814
- (b) (i) Left bank tributary is Balaram Nadi.
 (ii) It is flowing from SE to NW.
- (c) (i) Feature associated with streams is broken ground.
 (ii) Dendritic pattern.
- (d) Four figure grid reference :
 (i) Open scrub – 9573 (ii) Bantawada – 9978
- (e) Two relief features are :
 9782 – Conical hill
 9574 – Steep slope

Answer 2.

- (f) There is limited cultivation in the map because of :
 (i) Scarce rainfall.
 (ii) Sandy or desert area.
- (g) Sangla to Atroli – North-East.
 Sangla to Chekhla – North.
- (h) The region experiences seasonal rainfall. The different evidences are dry tanks, dry rivers, sand features, broken ground.
- (i) Distance in cm = 5.2
 Distance in km = (scale 2 cm. to 1 km.)
 Distance in km = 2.6.
Ans. 2.6 km.
- (j) (i) General pattern of settlement is nucleated.
 (ii) One region unsuitable for the cultivation of crops is broken ground/white coloured region which is a barren land.



PART-II

Answer 3.

- (a) Two cyclonic systems that affect India are :
 (i) Temperate cyclones – Region – North-west of India (Punjab, Haryana)
 (ii) Tropical cyclones – Region – Eastern coast of India (Andhra Pradesh, Tamil Nadu, West Bengal).
- (b) Characteristics of SW monsoon rainfall are :
 (i) Orographic in nature.
 (ii) Uncertain in amount and time.

- (c) (i) When the Malabar coast is receiving heavy rainfall in July, the Tamil Nadu coast is dry because it lies in rain shadow region of Arabian Sea branch and Bay of Bengal is parallel to the coast.

(ii) Northern Plains have continental climate because they are away from the moderating influence of the sea.

(iii) Central Maharashtra receives little rainfall because it lies in the rain shadow region of the Western Ghats when Arabian Sea branch strikes it.

- (d) (i) Annual rainfall is 114.3 cm.

(ii) Suggested name is Chennai because the station is receiving most of its rainfall in October and November.

(iii) Retreating monsoon season.

Answer 4.

- (a) Transported Soil : If a soil is carried elsewhere by the agents of gradation from the place of its origin, it is called transported soil, e.g. Alluvial soil.

In Situ Soil : If the soil remains at the place of its origin, it is called in situ, e.g. Black soil.

| (b) | Khadar | Bhagar |
|------|---|-------------------------------------|
| (i) | Clayey | Siliceous. |
| (ii) | Replenished by floods therefore more fertile. | Not replenished hence less fertile. |

- (c) Laterite Soil is formed by leaching in the region of alternate wet and dry spells.

Disadvantage : It is acidic in nature and cannot retain moisture.

- (d) With reference to Red Soil :

(i) Tamil Nadu and Karnataka.

(ii) Advantages :

(1) It has high iron oxide content and potash.

(2) It becomes productive with proper use of fertilizers.

(iii) Important crops are rice, millets and sugarcane.

Answer 5.

- (a) 1. Trees are dense and evergreen.
2. The thick ground cover of forests is characterised by climbers and epiphytes.

- (b) (i) Semal (ii) Teak
(iii) Sandalwood.

- (c) (i) Tidal forests : Deltas of Ganga, Mahanadi, Godavari, Krishna and Kaveri.

Thorn and scrub forests : Rajasthan and Gujarat.

(ii) They are found in the above region because these areas get less than 25 cm of rainfall and average temperature of 25°C to 27°C.

- (d) Forests are important natural resource because :

(i) They provide timber, medicinal plants etc.

(ii) They help in purifying air and bringing rain.

Answer 6.

- (a) Tube wells are extensively used in Punjab and Haryana because the land is soft to bore and availability of electric power.

- (b) Water scarcity occurs because of :

(i) Seasonal rainfall

(ii) More demand due to increase in population and polluted water.

- (c) (i) Two states are Punjab and Haryana.

(ii) Perennial canals are popular there because :

(a) Rivers here are perennial.

(b) Land is soft and fertile.

- (d) (i) Two methods of water harvesting in India are:

(1) Collecting rainwater on the rooftops and directing it to tanks.

(2) Watershed is defined as a geographic area through which water flows across the land and drains into common body of water such as stream, river, lake, ocean, etc.

(ii) Refer to ICSE Paper 2017, Answer 6. (d) (ii).

Answer 7.

- (a) Ore of aluminium is bauxite and two uses of aluminium are in :

(i) Aircraft Industry

(ii) Electrical Wires Industry.

- (c) Two industries that use high quantity of coal are :

(i) Iron and Steel Industry, Sugar Industry.

(ii) Coal Centre in Jharkhand – Jharia, in West Bengal – Raniganj.

- (d) (i) Largest producer of mineral oil is Assam.

(ii) Two coastal refineries are Kochi and Chennai. Two Inland refineries are Barauni and Mathura.

Answer 8.

| (a) | Intensive commercial farming | Extensive commercial farming |
|-------|---|------------------------------|
| (i) | Size of holdings is small. | Size of holdings is large. |
| (ii) | Food crops predominate. | Cash crops predominate. |
| (iii) | Maximum capital, labour and skill is involved for making a small area productive. | Yield per acre is much less. |

- (b) With reference to rice :
- (i) Tamil Nadu and West Bengal.
 - (ii) Two advantages of growing rice in nurseries are :
 - (1) It increases the yield by 45%.
 - (2) Uses water economically.
- (c) (i) Two states where coffee plantations are found are Karnataka and Kerala.
- (ii) Conditions required for coffee cultivation are :
 Soil : Red and Laterite soils well drained with humus.
 Climate : It requires temperature ranging between 18°C to 28°C and rainfall between 125 cm to 200 cm., well distributed throughout the year.
- (d) (i) **Retting** : It is the soaking of the stalk and the removal of the fibre from the bark after plants are submerged in a pool of gently flowing clean water to separate the long strands of fibre from the stem.
- (ii) **Ginning** : Removal of cotton seed from cotton fibre is called ginning.
- (iii) **Broadcasting** : Scattering of seeds by hand over the soil is called broadcasting method of sowing seeds.

Answer 9.

- (a) Two large sugar producing states are :
 In North India—Uttar Pradesh
 In South India—Maharashtra
- (b) (i) An agro-based industry in Ahmedabad—Cotton textile industry.
 (ii) Mysore—Silk textile industry.
- (d) Geographical reasons are :
 (ii) It is necessary to crush sugarcane within 24 hours of harvesting because the sugar content decreases as it dries up.
 (iii) Sericulture flourished in Karnataka because it has favourable climate for rearing silkworms (Temp. 16°C to 30°C) and availability of abundant soft water free from alkaline salts.

Answer 10.

- (a) (i) Significance of electronic industry :
 It covers a wide range of products including

television, transistor, cellular telecom, computers, defence, railways, meteorological equipments, space research as well as medical equipments. It has revolutionised the lifestyle of the Indian masses in the recent past.

(ii) Two cities are Bengaluru and Pune.

- (b) Two steel plants are :

(i) Bokaro (ii) Bhilai

- (c) Three reasons for large concentration of iron and steel plants in Chota Nagpur region are :

(i) Availability of iron ore
 (ii) Availability of coal for power
 (iii) Availability of cheap labour

- (d) Industrial products are :

(i) Gurgaon—Maruti cars.
 (ii) Perambur—Railway coaches.
 (iii) Chittaranjan—Locomotives.

Answer 11.

- (a) **Disadvantage of air transport** : It has limited carrying capacity. Still it is popular because it is free of physical barriers such as mountain ranges, valleys etc.
- (b) Peninsular rivers are not ideal for navigation because :
 (i) (1) Rivers are seasonal in nature
 (2) Rivers flow through undulating rocky plateau region.
 (ii) Vishakhapatnam port is often hit by cyclones during October and November.
- (c) (i) The objectives of the treatment of gaseous waste is to drain the harmful particles and allow clean air to escape through chimneys.
 (ii) Two diseases are lungcancer and asthma.
- (d) Cause of the following was :
 (i) The Bhopal Tragedy—Leakage of methyl isocyanate.
 (ii) The Minamata Disease—By mercury poisoning.
 (iii) The Chernobyl Disaster—Leakage of nuclear radiations.

QUESTIONS

PART—I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the Survey of India Map Sheet No. 45D/10 and answer the following questions :

- (a) Name and give the four figure grid reference of a settlement where the people of the region meet at least once a year. [1]
- (b) What does the conventional symbol at grid reference 145132 mean ? [1]
- (c) If a man were to walk from Gulabganj (1820) to Harmatiya (1916) :
 - (i) In which direction would he be walking ?
 - (ii) Which are the two different kinds of roads that he would be using ? [3]
- (d) What do the following numbers in grid square 1718 and 1818 mean ?
 - (i) 280
 - (ii) 281 [2]
- (e) What are the two differences between the settlement Bamba in 1914 and those in 1813 ? [2]
- (f) Name four facilities that Anadra has which makes it an important settlement. [2]
- (g) What is the quickest means of communication for the people of Dabani (1313) ? [1]
- (h) What do the following mean :
 - (i) brackish in 1915
 - (ii) causeway in 1715
 - (iii) 6r in 1218 ? [3]
- (i) Mention two factors which support the following :
 - (i) The Sipu river is in its middle course.
 - (ii) The rainfall in the region shown in the map extract is seasonal. [4]
- (j) What is the distance in kilometres between the distance stone 20 in 1818 and the causeway in 1715 along the metalled road ? [1]

Question 2.

On the outline map of India provided :

- (a) Draw, name and number the Tropic of Cancer [1]
- (b) Label the river Narmada [1]

- (c) Shade and name Lake Chilika [1]
- (d) Mark and name the Aravalli Mountains [1]
- (e) Mark and name the Karakoram Pass [1]
- (f) Shade and name a densely populated state in South India [1]
- (g) Shade and name a region with black soil [1]
- (h) Mark with a dot and name Srinagar [1]
- (i) Mark and name the winds which bring rain in winter to the Coromandel Coast [1]
- (j) Name and print O on an oilfield in North-east India. [1]

PART—II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) (i) Name the type of climate prevailing over India.
- (ii) Mention any two factors responsible for it. [2]
- (b) What is the direction of the summer monsoon ? Why ? [2]
- (c) Give geographical reasons for the following :
 - (i) Even in summer, Shimla is cooler than Delhi.
 - (ii) The northern plains of India do not freeze in winter.
 - (iii) Kochi has a lesser annual range of temperature than Agra. [3]
- (d) Study the climatic data given below and answer the questions that follow :

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 23.8 | 25.0 | 27.7 | 28.3 | 30.2 | 30.3 | 30.4 | 33.3 | 30.0 | 30.3 | 25.5 | 24.2 |
| Rainfall cm | 0 | 0 | 1.1 | 1.5 | 2.1 | 45.3 | 46.5 | 45.4 | 43.3 | 20.1 | 3.0 | 0.1 |

- (i) Calculate the mean annual temperature.
 - (ii) What is the total rainfall during the monsoon season ?
 - (iii) Does the station have a maritime or a continental climate ?
- Give a reason for your answer. [3]

Question 4.

- (a) State two methods of controlling the erosion of soil caused by running water. [2]
- (b) Mention two differences in the alluvial soil of the northern plains and the alluvial soil on the coastal plains of India. [2]
- (c) Mention any three characteristics of black soil which makes the soil fertile. [3]
- (d) Give geographical reasons for the following :
 (i) Laterite soil is not suitable for cultivation.
 (ii) Red soil is red in colour.
 (iii) Khadar soils are preferred to Bhangar soils. [3]

Question 5.

- (a) Mention two reasons why Tropical Evergreen Forests are difficult to exploit for commercial purposes ? [2]
- (b) Give two characteristics of tidal forests. [2]
- (c) Mention three reasons why forests must be conserved. [3]
- (d) Name any three trees found in monsoon deciduous forests and state one use of each of these trees. [3]

Question 6.

- (a) Mention two advantages of rainwater harvesting. [2]
- (b) Why are inundation canals being converted to perennial canals ? Give two reasons. [2]
- (c) Give two advantages and one disadvantage that tube wells have over surface wells. [3]
- (d) Where are tanks most widely used in India ? Why ? [3]

Question 7.

- (a) (i) Name two leading states producing Manganese.
 (ii) Name one use of the mineral. [2]
- (b) (i) Name two varieties of iron ore used in industry.
 (ii) How is the low grade iron ore utilised ? [2]
- (c) Give geographical reasons why :
 (i) Anthracite is used for domestic purposes.
 (ii) Oil refineries are located close to oil fields or near ports.
 (iii) The location of coal fields is an important factor in industrial development. [3]
- (d) Name the mineral :
 (i) Which is converted to aluminium.
 (ii) Which is used in the manufacture of cement.
 (iii) The largest deposits of which are found in Balaghat in Madhya Pradesh. [3]

Question 8.

- (a) What is the importance of agriculture in India ? Mention two factors. [2]

- (b) Name a state which produces short staple cotton. Which climatic and soil conditions favour the cultivation of cotton in the state mentioned ? [2]
- (c) Give geographical reasons for the following :
 (i) Jute has to be retted.
 (ii) Tea is grown on hill slopes.
 (iii) Silver oak and banana trees are grown on coffee plantations. [3]
- (d) Explain the following :
 (i) The propagation of rubber by Bud grafting method.
 (ii) The propagation of sugarcane by ratooning.
 (iii) The propagation of paddy by transplantation. [3]

Question 9.

- (a) Give two reasons why the woollen industry has not developed as well as the cotton industry in India.** [2]
- (b) State two factors which favour the silk industry in Karnataka. [2]
- (c) Mention three problems of the sugar industry in India. [3]
- (d) In what way does the cotton industry contribute to the economy of India ? Mention any three relevant factors. [3]

Question 10.

- (a) What are petrochemicals ?
 Name any two products made from petrochemicals. [2]
- (b) Why has the electronics industry grown in importance ? [2]
- (c) Mention three advantages that a mini steel plant has over an integrated steel plant. [3]
- (d) Name :
 (i) A city on the east coast of India which has a ship building yard.
 (ii) The iron and steel plant set up with German collaboration.
 (iii) A city which has a plant manufacturing Maruti cars. [3]

Question 11.

- (a) Why has the importance of inland waterways declined ? Give any two reasons. [2]
- (b) Name two areas where helicopter services may be used ? [2]
- (c) Mention any three problems being faced by the Indian Railways. [3]
- (d) What is the Golden Quadrilateral ? Mention any two ways in which it will help in the economic development of the country ? [3]

** Answer is not given due to change in the present syllabus.

ANSWERS

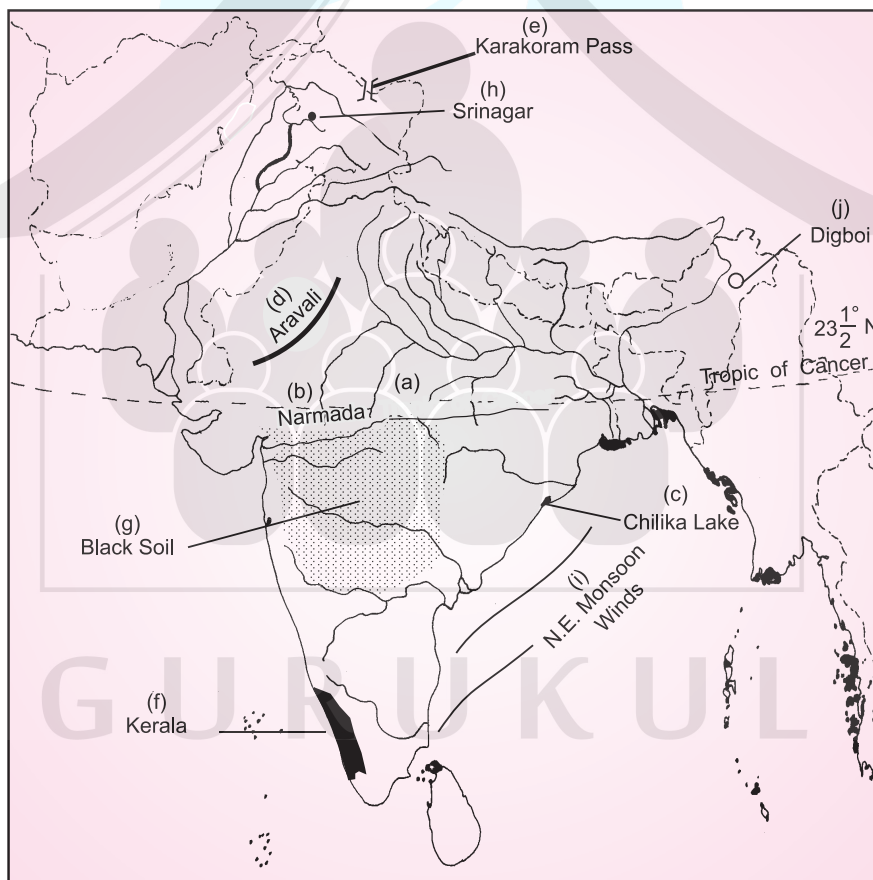
PART—I

Answer 1.

- (a) Malgaon 1520 or Pamera 1622
 (b) A temple
 (c) (i) South-East
 (ii) Metalled road and cart track
 (d) (i) Contour height—280 m
 (ii) Spot height—281 m
 (e) In Bamba, settlements are nucleated and temporary and in square 1813, the settlements are dispersed and permanent.
 (f) Facilities in Anadra are PTO (Post and Telegraph Office), police chowki, DB (Dak Bungalow), and dispensary.
 (g) Telephone.

Answer 2.

- (h) (i) Brackish : Water has high salt content and is not fit for drinking but may be used for irrigation.
 (ii) Causeway : A raised road over a stream.
 (iii) 6r means relative height of the bank of the river is 6 m.
 (i) (i) The Sipu Nadi is in its middle course because there are meanders and the land is level which shows that the river is slow.
 (ii) The rainfall in the region is seasonal :
 1. The rivers and tanks are seasonal in nature.
 2. There are many causeways in the map.
 (j) The distance is 2.8 km to 3 km.
 5.6 cm on map (as per scale 2 cm equals to 1 km)
 so $5.6 \rightarrow \frac{5.6}{2} = 2.8 \text{ km on ground.}$



PART—II

Answer 3.

- (a) (i) and (ii) Refer to ICSE Paper 2016, Answer 3 (a).
 (b) South-West. The intense heat that prevails over India causes the development of low pressure over the northern plains. It attracts the moisture bearing South-East Trade winds from the southern hemisphere. After crossing the equator they are deflected to the right and blow over India as the South-West monsoon winds.
 (c) (i) Shimla is cooler than Delhi in summer as it is located at a higher altitude than Delhi. Thus, due to Normal Lapse Rate, Shimla enjoys a cooler climate than Delhi.

(ii) The Himalayas prevent the bitterly cold winds of the north from entering into India and helps to keep the temperature of the northern plains at a moderate level.

(iii) Kochi has a coastal location while Agra has a continental location. Due to the influence of the moist winds from the sea, it experiences moderate climatic conditions throughout the year. Whereas, Agra has extreme temperature conditions resulting in high annual range of temperature.

(d) (i) 28 °C

(ii) 180.5 cm.

(iii) The station has a maritime climate as the range of temperature is very low *i.e.*, 6.6°C.

Answer 4.

(a) (i) Soil erosion can be prevented by growing more trees and grass to bind the soil.

(ii) Plugging of gullies and ravines.

| (b) | Alluvial Soil of Northern Plains | Alluvial Soil on the Coastal Plains |
|-----|----------------------------------|-------------------------------------|
| | (1) Light in colour | Dark in colour |
| | (2) Sandy | Clayey |
| | (3) Porous | Non-porous |
| | (4) Coarse in texture | Fine in texture |

(c) (i) Rich in iron, potash, lime, calcium and humus.
(ii) It is clayey in nature so has high water holding capacity.

(iii) It develops cracks when dry and hence has self-ploughing characteristics.

(d) (i) Laterite soil is acidic in nature and has low water retaining capacity. It is poor in nitrogen and lime.

(ii) Red soil has high percentage of iron oxides which makes it red in colour.

(iii) Khadar soils are preferred to Bhangar soils as they are replenished every year by floods.

Answer 5.

(a) Refer to ICSE Paper 2015, Answer 5 (b).

(b) Two characteristics of tidal forests are :

(i) Tidal forests are found to thrive in saline conditions.

(ii) They possess breathing roots or pneumatophores.

(c) Three reasons to conserve forests are :

(i) Forest conservation is needed to prevent soil erosion.

(ii) Forest conservation helps to save the habitat of the wild animals.

(iii) It also prevents desertification and floods.

(d) Three trees found in monsoon deciduous forests and their uses are :

(i) Sal—used for furniture making, railway sleepers.

(ii) Sandalwood—used for extracting sandalwood oil, handicrafts and perfumes.

(iii) Mulberry—used for rearing silkworms.

Answer 6.

(a) Refer to ICSE Paper 2018, Answer 6 (d) (ii).

(b) Inundation canals are converted to perennial canals because :

(i) Depend on flood water and dry up during summers, while perennial canals can provide water throughout the year.

(ii) Perennial canals irrigate a vast area, since they are lined to dams and barrages to provide water all round the year.

(c) **Advantages :** (i) Tube wells do not result in evaporation of water like surface wells.

(ii) It irrigates larger areas (400 hectares) as compared to surface wells.

Disadvantage : However, tube wells are only possible in areas where the groundwater level is not too low, power is needed to drain water.

(d) Tanks are mostly used in peninsular India. This is because :

(i) Peninsular India consists of hard impervious rocks which favour the storage of water.

(ii) Depressions in the plateau region can be used as natural tanks.

Answer 7.

(a) (i) Jharkhand and Odisha.

(ii) It is widely used in iron and steel industry for hardening steel.

(b) (i) Haematite and Magnetite.

(ii) The inferior variety is often used in manufacturing sponge iron and converted into pellets and then exported.

(c) (i) Anthracite is used for domestic purposes as it has a very high carbon content and emits very less smoke.

(ii) Oil refineries located near the oil fields help to transport crude oil through pipelines and hence reduce the transport cost. Moreover, if located near the port it helps to import the crude oil.

(iii) Coal is a bulky and heavy raw material. Industries located away from coal fields incur huge transport costs and affects the cost of production on a large scale.

(d) (i) Bauxite (ii) Manganese

Answer 8.

(a) Refer to ICSE paper 2016, Answer 8 (a).

(b) Maharashtra

Temperature : 21°C–32°C. Rainfall : 50cm–120 cm and at least 200 frost free days. Sunny weather during ripening and harvesting.

Soil : Black cotton soil or alluvial soil rich in lime, potash, calcium and magnesium.

(c) (i) Jute is retted as it helps to remove the fibre from the bark of the stalk easily.

(ii) Tea is grown on the hill slopes as it requires a moderate temperature of 18°C–28°C. Moreover, the hill slopes do not allow the stagnation of water which is essential for tea plants as they cannot tolerate waterlogged conditions.

(iii) Silver oak and banana trees protect the coffee plantations from the direct sunrays. It also provides extra income to the farmers.

(d) (ii) Ratooning involves the cutting of the cane close to the ground where the sugar content is maximum. After the crop has been cut, the stem begins to grow again and produces second crop called the ratoon.

(iii) Transplantation involves the sowing of rice seeds in nurseries at the beginning of monsoons. When the plants are about 15–20 cm tall, they are uprooted and replanted in parallel rows at regular intervals in flooded fields and left to grow till they mature.

Answer 9.

(b) 1. Two favourable factors for silk industry are : The tropical humid climate with temperature varying between 16°C to 31°C favours the rearing of silkworms.

2. Modern technology and skilled labour favours industrial production.

(c) Problems of the sugar industry are :

1. The industry is seasonal in character, so there is an overall increase in the cost of production due to short crushing season.

2. There are great distances between the factories and the fields. The increased transport cost increases the cost of production.

3. The low sugar content is due to poor quality cane which tends to dry if not crushed within 24 hrs.

(d) 1. The cotton industry is a major foreign exchange earner for India.

2. It provides employment to a large section of the population.

3. Supports a large number of industries like chemical, packaging material, etc.

Answer 10.

(a) Petrochemicals are chemicals derived from petroleum, LPG and coal products.

Products—Synthetics, fibres, plastics.

(Any two)

(b) The electronic products like telephone and internet services have made communication easy and fast, so the demand for such commodities is high. Industrial and technological development has also increased the demand for electronic products. It does wonders in the field of entertainment, defence equipments and medical diagnosis.

(c) Refer to ICSE Paper 2016, Answer 10 (a).

(d) (i) Vishakhapatnam

(ii) Rourkela Steel Plant

(iii) Gurgaon

Answer 11.

(a) Refer to ICSE Paper 2017, Answer 11(b).

(b) 1. Mountain and hilly areas.

2. Flooded area.

(c) 1. Railways are difficult to construct in the hilly and mountainous parts of India.

2. The huge size of the country makes it difficult to connect the remote parts of the country.

3. Obsolete trains, tracks and equipments make railways unsafe.

(d) The Golden Quadrilateral is a highway network connecting India's four largest metropolises : Delhi, Mumbai, Chennai and Kolkata. The project will help industrial development by easing the process of supply of raw materials. It will also help to connect many remote areas with the main cities.



QUESTIONS

PART—I (30 Marks)

(Attempt **all** questions from this Part)

Question 1.

Study the extract of the Survey of India Map Sheet No. 45D/10 and answer the following questions :

- (a) Give the six figure grid reference of :
 - (i) The brick kiln [2]
 - (ii) The temple near Asav. [2]
- (b) What is the difference in the pattern of drainage in grid square 0916 and in 0712 ? [2]
- (c) Give the four figure grid reference of each of the following :
 - (i) Stony waste [2]
 - (ii) Open shrubs. [2]
- (d) Calculate the distance in kilometers along the metalled road between the causeways in grid square 0512 and 0808. [2]
- (e) (i) What do the tiny curved black lines in grid square 0315 indicate ? [2]
 (ii) What is the main cause for this feature ? [2]
- (f) (i) What is the geographical name that you would give to the general pattern of settlements in the region shown on the map ? [2]
 (ii) Give a reason for your answer. [2]
- (g) What is the general direction of flow of the Sipu Nadi, given in the map extract ? Give a reason to support your answer. [2]
- (h) Name two probable occupations of the people in the settlement of Revdar in grid square 0313 and 0413. [2]
- (i) What kind of roads connect (i) Marol with Mitani and (ii) Revdar with Karaunti respectively ? [2]
- (j) Give two reasons to show that the area depicted in the map experiences seasonal rainfall. [2]

Question 2.

On the outline map of India provided :

- (a) Mark and name Kochi. [1]
- (b) Label the river Krishna. [1]
- (c) Shade and label the Malwa Plateau. [1]
- (d) Mark and label the Konkan Coast. [1]
- (e) Shade and label the Gulf of Mannar. [1]
- (f) Shade and label an alluvial soil area in Peninsular India. [1]

- (g) Mark with arrows the direction of the Arabian Sea branch of South-West Monsoon Winds. [1]
- (h) Shade and label the Western Ghats. [1]
- (i) Mark the Jharia coal field. [1]
- (j) Shade and name a densely populated area. [1]

PART—II (50 Marks)

(Attempt **any five** questions from this Part)

Question 3.

- (a) Give two important characteristics of the summer monsoon rainfall in India. [2]
- (b) 'Rainfall in India is Orographic in nature.' Give an example with reference to the distribution of rainfall and the effect of relief on its distribution. [2]
- (c) Give a reason to explain why :
 - (i) The coastal areas of India do not experience a significant variation in temperature between summer and winter months. [2]
 - (ii) The annual rainfall in Rajasthan is less than 25 cm. [2]
 - (iii) The Coromandel coast gets most of its rain during the winter season. [3]
- (d) Study the climatic data given below and answer the questions that follow :

| Month | JAN. | FEB. | MAR. | APR. | MAY | JUNE | JULY | AUG. | SEPT. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| Temp. °C | 24.5 | 25.7 | 27.7 | 20.4 | 30.0 | 32.5 | 31.0 | 30.2 | 29.8 | 28.0 | 25.9 | 24.7 |
| Rainfall cm | 4.6 | 1.8 | 1.3 | 1.8 | 3.8 | 4.5 | 8.7 | 11.3 | 11.9 | 30.6 | 35.0 | 13.9 |

- (i) Name the driest month. [1]
- (ii) Calculate the annual rainfall experienced by the station. [2]
- (iii) What is the annual range of temperature ? [3]

Question 4.

- (a) Name two states in India where Regur soil is found. In what way does Regur soil help agriculture ? [2]
- (b) Mention two main characteristics of Laterite soil. [2]
- (c) State the difference between Alluvial soils found in the lower courses and the upper courses of rivers. [3]
- (d) Name two important agents of erosion. [2]

For each, state one method of controlling the erosion caused. [3]

Question 5.

- (a) What are 'Tidal forests'? Name two typical trees found there. [2]
- (b) Write two main characteristics of the Deciduous Monsoon Forests. [2]
- (c) Name the type of forests found in the western part of the Western Ghats.
Give two reasons why these forests are so named. [3]
- (d) Mention three methods for the conservation and development of forests in India. [3]

Question 6.

- (a) Name two states in which well irrigation is widely used. **OR** Mention one advantage of well irrigation in India. [2]
- (b) Mention two disadvantages of tank irrigation. [2]
- (c) Give three reasons to justify the need to conserve water. [3]
- (d) Mention any three water harvesting systems practised in India. [3]

Question 7.

- (a) What grade of iron-ore is mostly mined in India?
Name two leading iron-ore producing states. [2]
- (b) What is lignite? Name the two areas where lignite is found in India. [2]
- (c) Name the leading producer of manganese in India.
Name two important industrial uses of manganese. [3]
- (d) Name the two states where limestone is found.**
Mention two important uses of limestone. [3]

Question 8.

- (a) Mention any two problems of agriculture in India. [2]
- (b) State two geographical requirements for the growth of wheat in India. [2]
- (c) With reference to the cultivation of coffee in Southern India :
(i) Name the two varieties of coffee plants grown on commercial scale.
(ii) Why are coffee estates interplanted with orange trees, cardamom and pepper vines?
(iii) Name one state where coffee is grown extensively. [3]

- (d) Explain the following terms :

- (i) Withering (ii) Plantation Farming
(iii) Drilling [3]

Question 9.

- (a) Name and define two important by-products of the sugar industry. [2]
- (b) Give two reasons why the state of Punjab is the largest producer of woollen textiles.** [2]
- (c) Mention three main problems of the Jute textile industry in India.** [3]
- (d) With reference to the cotton textile industry :
(i) Which is the country's most important manufacturing centre?
(ii) State two geographical reasons for its importance. [3]

Question 10.

- (a) Which iron and steel industry of India is located away from the main coal areas? What is the main source of energy in the absence of coal? [2]
- (b) Give two geographical reasons for the growth of IT industries in Bengaluru. [2]
- (c) With reference to the Bokaro Steel Plant, from where does it get its
(i) coal (ii) iron ore
(iii) water supply [3]
- (d) Name one important centre each for the production of the following :
(i) Tractors** (ii) Electronic goods
(iii) Petrochemicals. [3]

Question 11.

- (a) Why is road transport favoured in the northern plains of India? [2]
- (b) Give reasons to explain the lack of rail transport in Northern India. [2]
- (c) Name the following :
(i) An important inland waterway of north-east India.
(ii) One expressway with its terminal cities.
(iii) A major port which is not located on the sea coast and is at a distance of 128 km from the coast along the banks of a river. [3]
- (d) Mention two advantages and one disadvantage of air transport. [3]

ANSWERS**PART-I****Answer 1.**

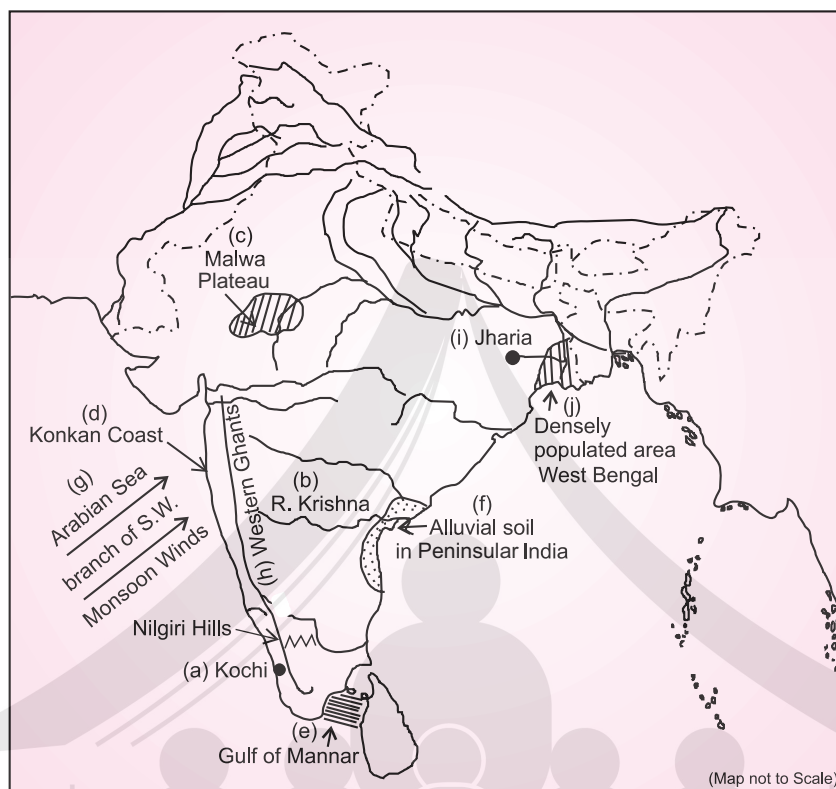
- (a) (i) 08813 (ii) 059128
(b) 0916 Radial, 0712 Trellis
(c) (i) 1014 (ii) 0816, 0916

** Answer is not given due to change in the present syllabus.

- (d) 5-7 km
(e) (i) broken ground
(ii) Flooding, hot and dry weather or spell.
(f) (i) nucleated
(ii) Settlements close together.

- (g) North-east to south-west because spot heights are receding from NE to SW, e.g., 261, 257 and 249.
 (h) Agriculture and services.
- (i) (i) Marol to Mitran cart track.
 (ii) Revdar to Karaunti metalled road
 (j) (i) Dry tank (ii) Dry streams.

Answer 2.



PART-II

Answer 3.

- (a) Two important characteristics of the summer monsoon rainfall in India are as follows :
- (i) The monsoon rainfall in India is unevenly spread and sporadic. Thus, places like the Western Ghats receive heavy rainfall of more than 200 cm, whereas, the desert regions of Rajasthan receive scanty rainfall of less than 50 cm a year.
- (ii) Monsoon rainfall in India is orographic in nature. Thus, the windward slopes of the Western Ghats receive more rain than the leeward slopes.
- (b) Relief plays a very important role in the distribution of rainfall in India. The windward slopes of the Western Ghats obstruct the moist winds from the sea and cause heavy rainfall. While the leeward slopes remain dry.
- (c) (i) The coastal areas of India do not experience a significant variation in temperature between summer and winter months due to the effect of land and sea breeze caused by differential rate of heating and cooling of the land and sea which results in an equable and moderate climatic conditions.
- (ii) The Arabian Sea branch of the South-West Monsoon which blows towards the Gujarat coast goes unhindered towards the Himalayas. The

Aravalli Hills lie parallel to the winds and offer no obstacle to the winds. Rajasthan, therefore, remains dry. The Bay of Bengal branch which blows from the east, sheds its rain on the way and gets dry by the time it reaches the west. Rajasthan also lies in the rain shadow of the Aravalli range. Hence Rajasthan gets little rain, overall about 25 cm.

(iii) The Coromandel coast remains dry during the Summer Monsoon season because it is located parallel to the Bay of Bengal branch and lies in the leeward side of the Arabian Sea branch. However, during the Retreating Monsoon Season, a low pressure condition prevails in the centre of Bay of Bengal and is marked by cyclonic depressions. These cyclonic depressions move from the north-east to the south-west and results in heavy rainfall.

- (d) (i) The driest month is March (1.3 cm).
 (ii) The annual rainfall experienced by the station is 129.2 cm.
 (iii) The annual range of temperature is 12.1°C.

Answer 4.

- (a) Two states in India which have Regur soil are Maharashtra and Gujarat.

Regur soil has high quantities of lime, iron and magnesium. Moreover, it is clayey in nature

which makes it highly retentive of moisture. These characteristics make the soil suitable for different types of crops like cotton, jowar, wheat, sugarcane, linseed and grass.

- (b) (i) Coarse, porous leached soil.
(ii) Poor in lime, nitrogen, magnesium and low moisture retentive infertile soil.
- (c) Difference between alluvial soils in the upper and lower courses of the rivers :

| Upper course | Lower course |
|--|---|
| (i) It is coarser i.e. particles are bigger in size. | It is finer and finest in the lowest section. |
| (ii) It is dry and less compact. | It is more moist and more compact. |

- (d) The two important agents of erosion are :

(i) Water (ii) Wind.

Methods of controlling erosion :

(i) **Erosion by water** : During heavy downpours deep 'gullies' are made on account of water run off. Gully erosion can be stopped by plugging it with stones and pebbles or quick growing grasses can be grown in gullies to stop its expansion.

(ii) **Erosion by wind** : Wind erosion reduces the productive capacity of the soil by removing the loose particles of soil with the high velocity wind. The nutrients required by the plants are taken away by the wind. Therefore, more and more trees should be planted along the edges of the fields, the waste land and also on the steep slopes. If it is difficult to grow trees, grass should be grown but no land should be left devoid of plants.

Answer 5.

- (a) Tidal forests are found in wet marshy areas, in river deltas, in saline or swampy areas along the sea coast. These forests consist of evergreen species with stilt roots which are submerged under water.

Two typical trees found there are Sundri and Casuarina.

- (b) Two characteristics of deciduous monsoon forests are :

(i) The trees in these forests shed their leaves for six to eight weeks during spring and early summer.

(ii) The trees in these forests occur in pure stand which makes it suitable for commercial exploitation.

- (c) The Tropical Evergreen forests are found in the western part of the Western Ghats.

The trees are named Tropical Evergreen forests because :

The trees in these forests do not have a fixed time to shed their leaves. Thus, they appear evergreen

throughout the year. Moreover, these forests receive very heavy rainfall. The high humidity experienced by these forests does not necessitate the trees to shed their leaves during a particular part of the year, to check the loss of moisture through evaporation of water via transpiration. Thus, the forests appear evergreen, as they do not shed their leaves during a particular time of the year.

- (d) Three methods for the conservation and development of forests :

(i) Grow more trees.

(ii) Forests regions are being declared "Reserved Sanctuaries" to preserve the ecosystem and protect animals.

(iii) Afforestation and Reafforestation : Afforestation is the planting of more trees and Reafforestation is to plant trees in place of those which are cut down. The policy of the Government is to plant two trees in place of every one tree that is cut.

Answer 6.

- (a) Two states in which well irrigation is widely used are Uttar Pradesh and Rajasthan.

One advantage of well irrigation is that it is the simplest and the cheapest source of irrigation, that can be dug at any convenient place.

- (b) Two disadvantages of tank irrigation are :

(i) Tanks occupy large surface area, which could otherwise have been used for cultivation.

(ii) Many tanks dry up during the dry season and fail to provide water for irrigation.

- (c) The need to conserve water can be stated as follows :

(i) The over exploitation of underground water often results in the lowering of water table.

(ii) Water resources like the rivers, lakes and underground water are polluted and their water can be hardly used without adequate treatment.

(iii) The increase in population with the progress of time results in water scarcity.

- (d) (i) The simplest rainwater harvesting technique is the check dam. It is a small barrier built across streams. It stores water during the monsoons which can then be used for irrigation etc.

(ii) Another rainwater harvesting technique is the storage tank kept underground and connected to the pipe coming down from the roof. The rainwater enters the tank through a filter which removes leaves and other debris. The system contains a pump which pushes or sucks the rainwater back into the house which is then delivered to the garden, washing clothes, etc.

(iii) Another rainwater collection system is the Garden Watersaver Diverter. It is a downspout

rainwater diverter which simplifies the collection of rainwater. It has advantages over other rainwater collection systems in that it installs in minutes and deactivates in seconds during winter when the stored water isn't much needed.

Answer 7.

- (a) Haematite variety of iron ore is mostly mined in India. Chhattisgarh and Jharkhand are two leading iron ore producing states of India.
- (b) Lignite refers to inferior variety coal which contains about 40% of carbon and a good amount of moisture and less of combustible matter. Two states where lignite is found are Tamil Nadu and Gujarat.
- (c) Odisha is the leading producer of manganese in India. Two important industrial uses of manganese are :
- It is an important raw material for iron and steel industry which is used to make steel tough and resistant to rusting.
 - Manganese is used in the manufacturing of black enamel in chemical industries for the manufacturing of bleaching powder, electrical and glass industries.

Answer 8.

- (a) Two problems of agriculture in India are :
- Soil erosion is a major cause for decreasing soil fertility and also loss of valuable crop land.
 - Agriculture in India is dependent on monsoon rainfall. Over 60% of the net cropped area lacks irrigation facilities.
- (b) The geographical requirements for the growth of wheat in India are as follows :
- Temperature :** Ideal temperature between 10°C – 15°C is suitable for sowing and 20°C – 25°C during harvest.
- Rainfall :** About 80 cm of annual rainfall is ideal for wheat cultivation.
- Soil :** Wheat grows best in well drained clayey block soil.
- (c) (i) Two varieties of coffee plants grown on commercial scale in Southern India are Coffee Robusta and Coffee Arabica.
- Coffee estates are interplanted with orange trees, cardamom and pepper vines as it provides shade to the coffee plants and provides supplementary income to the farmers.
 - Karnataka.
- (d) (i) Withering : The tea leaves are spread over shelves called withering racks and hot air is blown over the leaves to reduce their moisture content and to make them soft and flexible.
- Plantation farming refers to single crop farming in large estates which are scientifically managed. In plantation farming, crops are mainly raised for sale.

(iii) Drilling refers to the dropping of rice seeds in a straight line at regular intervals through a bamboo shaft attached to the plough which makes furrows.

Answer 9.

- (a) (i) Bagasse : The left over cane, after crushing is used for producing steam which is used as a source of power. It is also used for making card boards and paper.
- Molasses is used in alcohol industry for distillation of liquor, it is also used for making synthetic rubber.
- (d) (i) Mumbai.
- (1) The hinterland of Mumbai has Black Regur soil so plenty of raw material is easily available.
 - (2) The humid climate of Mumbai favours the production of yarns of finer quality.

Answer 10.

- (a) Visveswaraya Iron and Steel Plant is located away from the main coal producing areas. Forests on the Western Ghats supply charcoal which is the main source of energy.
- (b) The growth of IT industries in Bengaluru is due to:
- Readily available world class IT infrastructure.
 - High concentration of IT companies and quality research and development institutions.
- (c) (i) Coal from Bokaro and Jharia.
- Iron ore from Bonaigarh and Noamundi.
 - Water supply from river Damodar.
- (d) (i) Electronic goods—Bengaluru
- Petrochemicals—Haldia.

Answer 11.

- (a) Road transport is favoured in the Northern plains due to its fertile soils and the high density of population.
- (b) Northern India has rugged relief and large number of rivers which makes construction of railways expensive.
- (c) (i) The National Waterway No. 2—The river Brahmaputra connecting Dhubri —Guwahati—Dibrugarh.
- The Sher Shah Suri Marg connecting Delhi and Amritsar.
 - Kolkata port.
- (d) Two advantages of air transport are :
- It is the fastest and the most comfortable mode of transport. It connects the remote areas of the country.
 - Air transport can move across mountain barriers, sandy deserts, large expanses of water and forests.
- One disadvantage of air transport : It depends on weather conditions. Flights are often delayed due to bad weather.



QUESTIONS

(Two Hours and a half)

Answer to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spend in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **all** questions from Section A and **any four** questions from Section B.

All working, including rough work, must be clearly shown and must be done on the same sheet as the rest of the answer.

Omission of essential working will result in loss of marks.

The intended marks for questions of parts of questions are given in brackets [].

Mathematical table are provided.

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

- (a) Solve the following quadratic equation : [3]

$$x^2 - 7x + 3 = 0$$

Give your answer correct to two decimal places.

- (b) Given $A = \begin{bmatrix} x & 3 \\ y & 3 \end{bmatrix}$ [3]

If $A^2 = 3I$, where I is the identity matrix of order 2, find x and y .

- (c) Using ruler and compass, construct a triangle ABC where $AB = 3$ cm, $BC = 4$ cm and $\angle ABC = 90^\circ$. Hence, construct a circle circumscribing the triangle ABC . Measure and write down the radius of the circle. [4]

Question 2.

- (a) Use factor theorem to factorise $6x^3 + 17x^2 + 4x - 12$ completely. [3]

- (b) Solve the following inequation and represent the solution set on the number line.

$$\frac{3x}{5} + 2 < x + 4 \leq \frac{x}{2} + 5, x \in \mathbb{R} \quad [3]$$

- (c) Draw a histogram for the given data, using a graph paper : [4]

| Weekly Wages (in ₹) | No. of People |
|---------------------|---------------|
| 3000–4000 | 4 |
| 4000–5000 | 9 |
| 5000–6000 | 18 |
| 6000–7000 | 6 |
| 7000–8000 | 7 |
| 8000–9000 | 2 |
| 9000–10000 | 4 |

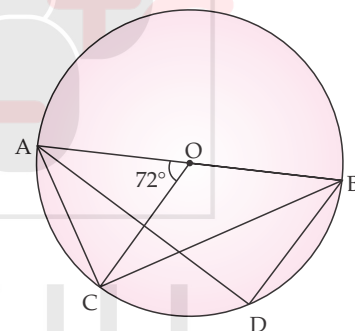
Estimate the mode from the graph.

Question 3.

- (a) In the figure given below, O is the centre of the circle and AB is a diameter. [3]

If $AC = BD$ and $\angle AOC = 72^\circ$. Find :

- (i) $\angle ABC$
(ii) $\angle BAD$
(iii) $\angle ABD$



- (b) Prove that : [3]

$$\frac{\sin A}{1 + \cot A} - \frac{\cos A}{1 + \tan A} = \sin A - \cos A$$

- (c) In what ratio is the line joining $P(5, 3)$ and $Q(-5, 3)$ divided by the y -axis ? Also find the coordinates of the point of intersection. [4]

Question 4.

- (a) A solid spherical ball of radius 6 cm is melted and recast into 64 identical spherical marbles. Find the radius of each marble. [3]
(b) Each of the letters of the word 'AUTHORIZES' is written on identical circular discs and put in a bag.

They are well shuffled. If a disc is drawn at random from the bag, what is the probability that the letter is :

[3]

- (i) a vowel
- (ii) one of the first 9 letters of the English alphabet which appears in the given word.
- (iii) one of the last 9 letters of the English alphabet which appears in the given word ?
- (c) Mr. Bedi visits the market and buys the following articles :
- Medicines costing ₹ 950, GST @ 5%
- A pair of shoes costing ₹ 3000, GST @ 18%
- A laptop bag costing ₹ 1000 with a discount of 30%, GST @ 18%.
- (i) Calculate the total amount of GST paid.
- (ii) The total bill amount including GST paid by Mr. Bedi.

SECTION—B (40 Marks)

(Attempt any four questions from this Section)

Question 5.

- (a) A company with 500 shares of nominal value ₹ 120 declares an annual dividend of 15%. Calculate :
- (i) the total amount of dividend paid by the company.
- (ii) annual income of Mr. Sharma who holds 80 shares of the company.
- If the return percent of Mr. Sharma from his shares is 10%, find the market value of each share.

- (b) The mean of the following data is 16. Calculate the value of f .

| Marks | 5 | 10 | 15 | 20 | 25 |
|-----------------|---|----|-----|----|----|
| No. of Students | 3 | 7 | f | 9 | 6 |

- (c) The 4th, 6th and the last term of a geometric progression are 10, 40 and 640 respectively. If the common ratio is positive, find the first term, common ratio and the number of terms of the series.

Question 6.

- (a) If $A = \begin{bmatrix} 3 & 0 \\ 5 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} -4 & 2 \\ 1 & 0 \end{bmatrix}$

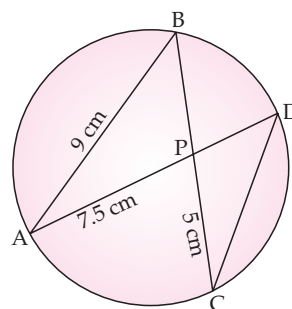
[3]

Find $A^2 - 2AB + B^2$

- (b) In the given figure $AB = 9$ cm, $PA = 7.5$ cm and $PC = 5$ cm. Chords AD and BC intersect at P .

[3]

- (i) Prove that $\triangle PAB \sim \triangle PCD$
- (ii) Find the length of CD .
- (iii) Find area of $\triangle PAB$: area of $\triangle PCD$



- (c) From the top of a cliff, the angle of depression of the top and bottom of a tower are observed to be 45° and 60° respectively. If the height of the tower is 20 m.

[4]

Find :

- (i) the height of the cliff
- (ii) the distance between the cliff and the tower.

Question 7.

- (a) Find the value of ' p ' if the lines, $5x - 3y + 2 = 0$ and $6x - py + 7 = 0$ are perpendicular to each other. Hence, find the equation of a line passing through $(-2, -1)$ and parallel to $6x - py + 7 = 0$.

[3]

- (b) Using properties of proportion find $x : y$, given :

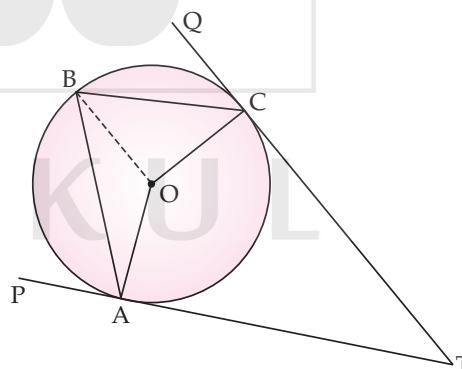
$$\frac{x^2 + 2x}{2x + 4} = \frac{y^2 + 3y}{3y + 9}$$

[3]

- (c) In the given figure TP and TQ are two tangents to the circle with centre O , touching at A and C respectively. If $\angle BCQ = 55^\circ$ and $\angle BAP = 60^\circ$, find :

[4]

- (i) $\angle OBA$ and $\angle OBC$
- (ii) $\angle AOC$
- (iii) $\angle ATC$



Question 8.

- (a) What must be added to the polynomial $2x^3 - 3x^2 - 8x$, so that it leaves a remainder 10 when divided by $2x + 1$?

[3]

- (b) Mr. Sonu has a recurring deposit account and deposits ₹ 750 per month for 2 years. If he gets ₹ 19125 at the time of maturity, find the rate of interest.

[3]

(c) Use graph paper for this question.

Take 1 cm = 1 unit on both x and y axes.

(i) Plot the following points on your graph sheets :

A (-4, 0), B (-3, 2), C (0, 4), D (4, 1) and E (7, 3)

(ii) Reflect the points B, C, D and E on the x-axis and name them as B', C', D' and E' respectively.

(iii) Join the points A, B, C, D, E, E', D', C', B' and A in order.

(iv) Name the closed figure formed.

[4]

(c) Use ruler and compass for this question. Construct a circle of radius 4.5 cm. Draw a chord AB = 6 cm. [4]

(i) Find the locus of points equidistant from A and B. Mark the point where it meets the circle as D.

(ii) Join AD and find the locus of points which are equidistant from AD and AB. Mark the point where it meets the circle as C.

(iii) Join BC and CD. Measure and write down the length of side CD of the quadrilateral ABCD.

Question 9.

(a) 40 students enter for a game of shot-put competition.

The distance thrown (in metres) is recorded below : [6]

| Distance in m | Number of Students |
|---------------|--------------------|
| 12 – 13 | 3 |
| 13 – 14 | 9 |
| 14 – 15 | 12 |
| 15 – 16 | 9 |
| 16 – 17 | 4 |
| 17 – 18 | 2 |
| 18 – 19 | 1 |

Use a graph paper to draw an ogive for the above distribution.

Use a scale of 2 cm = 1 m on one axis and 2 cm = 5 students on the other axis.

Hence using your graph find :

(i) the median

(ii) Upper Quartile

(iii) Number of students who cover a distance which is above $16\frac{1}{2}$ m.(b) If $x = \frac{\sqrt{2a+1} + \sqrt{2a-1}}{\sqrt{2a+1} - \sqrt{2a-1}}$, prove that $x^2 - 4ax + 1 = 0$

[4]

Question 10.(a) If the 6th term of an A.P. is equal to four times its first term and the sum of first six terms is 75, find the first term and the common difference. [3]

(b) The difference of two natural numbers is 7 and their product is 450. Find the numbers. [3]

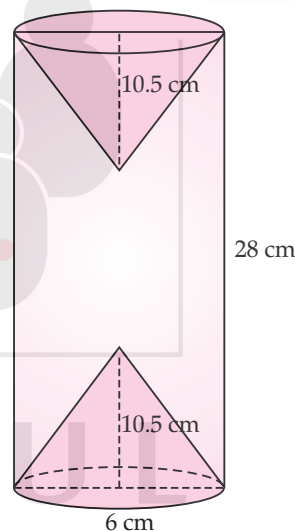
Question 11.

(a) A model of a high rise building is made to a scale of 1 : 50. [3]

(i) If the height of the model is 0.8 m, find the height of the actual building.

(ii) If the floor area of a flat in the building is 20 m², find the floor area of that in the model.

(b) From a solid wooden cylinder of height 28 cm and diameter 6 cm, two conical cavities are hollowed out. The diameters of the cones are also of 6 cm and height 10.5 cm. [3]

Taking $\pi = \frac{22}{7}$ find the volume of the remaining solid.

(c) Prove the identity

[4]

$$\left(\frac{1 - \tan \theta}{1 - \cot \theta} \right)^2 = \tan^2 \theta$$

ANSWERS**SECTION—A****Solution 1.**(a) Given : $x^2 - 7x + 3 = 0$ Here, $a = 1$, $b = -7$ and $c = 3$ \therefore

$$\begin{aligned}
 x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\
 &= \frac{-(-7) \pm \sqrt{(-7)^2 - 4 \times 1 \times 3}}{2 \times 1}
 \end{aligned}$$

$$= \frac{7 \pm \sqrt{49 - 12}}{2}$$

$$= \frac{7 \pm \sqrt{37}}{2} = \frac{7 \pm 6.08}{2}$$

Taking positive sign,

$$x = \frac{7 + 6.08}{2} = 6.541$$

Taking negative sign,

$$x = \frac{7 - 6.08}{2} = 0.458$$

Hence,

$$x = 6.54 \text{ and } 0.46$$

Ans.

(b) Given :

$$A = \begin{bmatrix} x & 3 \\ y & 3 \end{bmatrix}$$

Also,

$$A^2 = 3I$$

$$\Rightarrow \begin{bmatrix} x & 3 \\ y & 3 \end{bmatrix} \begin{bmatrix} x & 3 \\ y & 3 \end{bmatrix} = 3 \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} x^2 + 3y & 3x + 9 \\ xy + 3y & 3y + 9 \end{bmatrix} = \begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$$

Comparing both sides, we get

$$3x + 9 = 0$$

$$\Rightarrow x = -\frac{9}{3} = -3$$

and $3y + 9 = 3$

$$\Rightarrow 3y = 3 - 9 = -6$$

$$\Rightarrow y = -\frac{6}{3} = -2$$

$$\therefore x = -3 \text{ and } y = -2$$

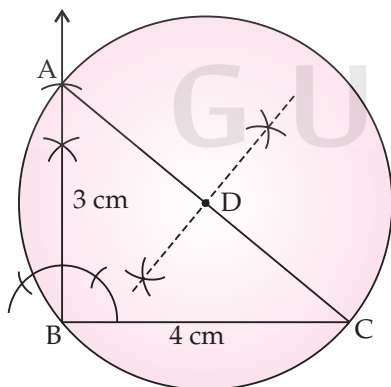
Ans.

(c) Steps of construction:

(i) Draw $BC = 4$ cm.

(ii) Make an angle of 90° at B and cut an arc of radius 3 cm on it to get point A .

(iii) Join AC . Thus, $\triangle ABC$ is obtained.



(iv) Draw perpendicular bisector of AC , which meets AC at D .

(v) Taking D as centre and radius equal to AD or DC , draw a circle. Thus, it is a required circle.

Since, $AC = 5$ cm, so, $AD = 2.5$ cm.

Solution 2.

(a) Let $p(x) = 6x^3 + 17x^2 + 4x - 12$

$$\therefore p(-2) = 6 \times (-2)^3 + 17 \times (-2)^2 + 4 \times (-2) - 12$$

$$= 6 \times (-8) + 17 \times 4 - 8 - 12$$

$$= -48 + 68 - 20$$

$$= -68 + 68 = 0$$

$\therefore (x + 2)$ is a factor of $p(x)$

Dividing $p(x)$ by $(x + 2)$, see get

$$\begin{array}{r} x+2 \overline{) 6x^3 + 17x^2 + 4x - 12} \\ \underline{6x^3 + 12x^2} \\ 5x^2 + 4x - 12 \\ \underline{5x^2 + 10x} \\ -6x - 12 \\ \underline{-6x - 12} \\ 0 \end{array}$$

Now for the quotient

$$\therefore 6x^2 + 5x - 6 = 6x^2 + 9x - 4x - 6$$

$$= 3x(2x + 3) - 2(2x + 3)$$

$$= (3x - 2)(2x + 3)$$

Therefore,

$$6x^3 + 17x^2 + 4x - 12 = (x + 2)(6x^2 + 5x - 6)$$

$$= (x + 2)(2x + 3)(3x - 2)$$

Ans.

(b) Given :

$$\frac{3x}{5} + 2 < x + 4 \leq \frac{x}{2} + 5$$

Now,

$$\frac{3x}{5} + 2 < x + 4$$

$$\Rightarrow \frac{3x}{5} - x < 4 - 2$$

$$\Rightarrow \frac{3x - 5x}{5} < 2$$

$$\Rightarrow -2x < 10$$

$$\Rightarrow x > -\frac{10}{2}$$

$$\Rightarrow x > -5$$

And, $x + 4 \leq \frac{x}{2} + 5$

$$\Rightarrow x - \frac{x}{2} \leq 5 - 4$$

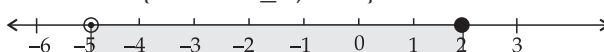
$$\Rightarrow \frac{x}{2} \leq 1$$

$$\Rightarrow x \leq 2$$

Hence, $-5 < x \leq 2$

Solution

$$\{x: -5 < x \leq 2, \in \mathbb{R}\}$$



(c)



We have, maximum frequency = 18

\therefore Modal class = 5000 – 6000

Join AC and BD and draw a perpendicular from point G to X-axis at 5450.

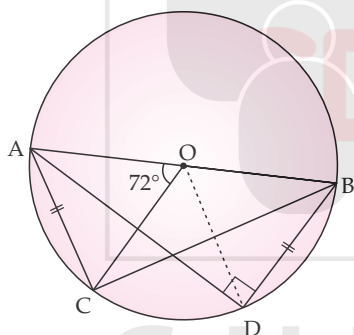
Hence, estimated mode is 5450.

Ans.

Solution 3.

(a) Given :

$$AC = BD \text{ and } \angle AOC = 72^\circ$$



(i) \because Angle subtended by an arc at the centre is twice the angle subtended by the same arc at any point on the remaining part of the circle.

$$\therefore \angle AOC = 2\angle ABC$$

$$\Rightarrow \angle ABC = \frac{1}{2} \angle AOC$$

$$= \frac{1}{2} \times 72^\circ = 36^\circ$$

Ans.

(ii) Since $BD = AC$ and equal chords subtend equal angles at the centre.

$$\text{So, } \angle BOD = \angle AOC = 72^\circ$$

$$\text{and, } \angle BAD = \frac{1}{2} \angle BOD$$

$$= \frac{1}{2} \times 72^\circ = 36^\circ$$

Ans.

(iii) In $\triangle ABD$,

$$\angle BAD + \angle ABD + \angle ADB = 180^\circ$$

$$\Rightarrow 36^\circ + \angle ABD + 90^\circ = 180^\circ$$

$[\because \angle ADB \text{ is in semicircle and angles of a triangle adds upto } 180^\circ]$

$$\Rightarrow \angle ABD = 180^\circ - 126^\circ = 54^\circ$$

Ans.

(b) To prove :

$$\frac{\sin A}{1 + \cot A} - \frac{\cos A}{1 + \tan A} = \sin A - \cos A$$

$$\text{Taking, L.H.S.} = \frac{\sin A}{1 + \cot A} - \frac{\cos A}{1 + \tan A}$$

$$= \frac{\sin A \times \sin A}{\sin A + \cos A}$$

$$- \frac{\cos A \times \cos A}{\cos A + \sin A}$$

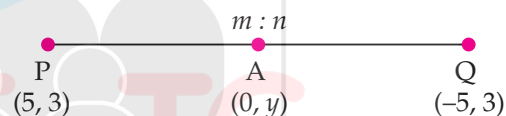
$$= \frac{\sin^2 A - \cos^2 A}{\sin A + \cos A}$$

$$= \frac{(\sin A - \cos A)(\sin A + \cos A)}{(\sin A + \cos A)}$$

$$[\because a^2 - b^2 = (a - b)(a + b)]$$

$$= \sin A - \cos A = \text{R.H.S.}$$

Hence Proved.

(c) Given points are $P(5, 3)$ and $Q(-5, 3)$ 

Let the coordinates of the point where this line meets y-axis be $A(0, y)$ and the ratio be $m : n$. Using section formula, we have

$$(x, y) = \left(\frac{mx_2 + nx_1}{m + n}, \frac{my_2 + ny_1}{m + n} \right)$$

$$\Rightarrow 0 = \frac{-5m + 5n}{m + n}$$

$$\Rightarrow 0 = -5m + 5n$$

$$\Rightarrow 5m = 5n$$

$$\text{or } m : n = 5 : 5 = 1 : 1$$

$$\text{Now, } y = \frac{m \times 3 + 3 \times n}{m + n}$$

$$= \frac{1 \times 3 + 1 \times 3}{1 + 1}$$

$$= \frac{3 + 3}{2}$$

$$= \frac{6}{2} = 3$$

Hence, the required ratio is $1 : 1$ and the point of intersection is $(0, 3)$.

Ans.

Solution 4.

- (a) Let the radius of each spherical marble be r cm.
Then, volume of 64 spherical marbles
= volume of solid spherical ball
- $$\Rightarrow 64 \times \frac{4}{3} \pi r^3 = \frac{4}{3} \times \pi \times 6^3$$
- $$\Rightarrow r^3 = \frac{6 \times 6 \times 6}{64}$$
- $$\Rightarrow r^3 = \left(\frac{6}{4}\right)^3$$
- or $r = \frac{6}{4} = 1.5$

Hence, the radius of each marble is 1.5 cm. **Ans.**

- (b) Letters are A, U, T, H, O, R, I, Z, E, S.
 \Rightarrow Total number of letters in the given word = 10.

(i) Here, vowels are A, U, O, I, E.

\Rightarrow Number of vowels = 5

So, probability (a vowel) = $\frac{5}{10} = \frac{1}{2}$ **Ans.**

(ii) Letters in the given word which are in first 9 letters of english alphabets are A, I, E and H.

\Rightarrow Number of such letters = 4

\therefore Probability = $\frac{4}{10} = \frac{2}{5}$ **Ans.**

(iii) Letters in the given word which are in last 9 letters of english alphabets are U, T, R, Z and S.

\Rightarrow Number of such letters = 5

\therefore Probability = $\frac{5}{10} = \frac{1}{2}$ **Ans.**

- (c) (i) Cost of medicines = ₹ 950
GST on medicines = 5% of 950
 $= \frac{5}{100} \times 950$
 $= ₹ 47.50$

Cost of a pair of shoes = ₹ 3000

GST on shoes = 18% of ₹ 3000
 $= \frac{18}{100} \times 3000$
 $= ₹ 540$

Cost of laptop bag = ₹ 1000

Discount on bag = 30% of 1000
 $= \frac{30}{100} \times 1000$
 $= ₹ 300$

\therefore Cost of laptop bag after discount
 $= ₹ (1000 - 300)$
 $= ₹ 700$

GST on laptop bag = 18% of ₹ 700

$$= \frac{18}{100} \times 700$$

$$= ₹ 126$$

\therefore Total GST on all items

$$= ₹ (47.50 + 540 + 126)$$

$$= ₹ 713.50 \quad \text{Ans.}$$

(ii) Total bill including GST = cost of (medicines + shoes + laptop bag) + Total GST on all items.

$$= ₹ (950 + 3000 + 700)$$

$$+ ₹ 713.50$$

$$= ₹ (4650 + 713.50)$$

$$= ₹ 5363.50 \quad \text{Ans.}$$

SECTION—B**Solution 5.**

(a) (i) Total number of shares = 500

Nominal value of each share = ₹ 120

And, Dividend = 15%

Total value of shares = ₹ (500 × 120)
 $= ₹ 60,000$

So, Total dividend = 15% of ₹ 60,000

$$= \frac{15}{100} \times 60,000$$

$$= ₹ 9,000 \quad \text{Ans.}$$

(ii) Annual income of 80 shares

= 15% of (80 × 120)

$$= \frac{15}{100} \times 9600$$

$$= ₹ 1,440 \quad \text{Ans.}$$

Let the market value of each share be ₹ x .

So, 10% of $80x = 1440$

$$\Rightarrow \frac{10}{100} \times 80x = 1440$$

$$\Rightarrow x = \frac{1440 \times 10}{80}$$

$$x = 180$$

So, the market value of each share is ₹ 180. **Ans.**

(b)

| Marks x_i | No. of students f_i | $f_i x_i$ |
|----------------|--------------------------|----------------------------|
| 5 | 3 | 15 |
| 10 | 7 | 70 |
| 15 | f | $15f$ |
| 20 | 9 | 180 |
| 25 | 6 | 150 |
| | $\sum f_i = 25 + f$ | $\sum f_i x_i = 415 + 15f$ |

We know, mean = $\frac{\sum f_i x_i}{\sum f_i}$

$$\Rightarrow 16 = \frac{415 + 15f}{25 + f}$$

$$\Rightarrow 400 + 16f = 415 + 15f$$

$$\Rightarrow 16f - 15f = 415 - 400$$

$$\Rightarrow f = 15$$

(c) Given : $a_4 = 10, a_6 = 40, a_n = 640$

$$\therefore ar^3 = 10 \quad \dots(i)$$

$$\text{and } ar^5 = 40 \quad \dots(ii)$$

On dividing (ii) by (i),

$$\frac{ar^5}{ar^3} = \frac{40}{10}$$

$$\Rightarrow r^2 = 4$$

$$\Rightarrow r = 2 \quad [\because r \text{ is positive}]$$

Putting $r = 2$ in equation (i), we get

$$a \times 2^3 = 10$$

$$\Rightarrow a = \frac{10}{8} = \frac{5}{4}$$

$$\text{Now, } a_n = 640$$

$$\Rightarrow ar^{n-1} = 640$$

$$\Rightarrow \frac{5}{4} \times (2)^{n-1} = 640$$

$$\Rightarrow 2^{n-1} = \frac{640 \times 4}{5} = 128 \times 4$$

$$\Rightarrow 2^{n-1} = 2^9$$

$$\therefore n - 1 = 9$$

$$\therefore n = 9 + 1 = 10$$

$$\text{Hence, } a = \frac{5}{4}, r = 2 \text{ and } n = 10$$

Ans.

Solution 6.

(a) Given : $A = \begin{bmatrix} 3 & 0 \\ 5 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} -4 & 2 \\ 1 & 0 \end{bmatrix}$

$$\text{Now, } A^2 - 2AB + B^2 = \begin{bmatrix} 3 & 0 \\ 5 & 1 \end{bmatrix} \begin{bmatrix} 3 & 0 \\ 5 & 1 \end{bmatrix}$$

$$- 2 \begin{bmatrix} 3 & 0 \\ 5 & 1 \end{bmatrix} \begin{bmatrix} -4 & 2 \\ 1 & 0 \end{bmatrix} + \begin{bmatrix} -4 & 2 \\ 1 & 0 \end{bmatrix} \begin{bmatrix} -4 & 2 \\ 1 & 0 \end{bmatrix}$$

$$= \begin{bmatrix} 9+0 & 0+0 \\ 15+5 & 0+1 \end{bmatrix} - 2 \begin{bmatrix} -12+0 & 6+0 \\ -20+1 & 10+0 \end{bmatrix}$$

$$+ \begin{bmatrix} 16+2 & -8+0 \\ -4+0 & 2+0 \end{bmatrix}$$

$$= \begin{bmatrix} 9 & 0 \\ 20 & 1 \end{bmatrix} - 2 \begin{bmatrix} -12 & 6 \\ -19 & 10 \end{bmatrix} + \begin{bmatrix} 18 & -8 \\ -4 & 2 \end{bmatrix}$$

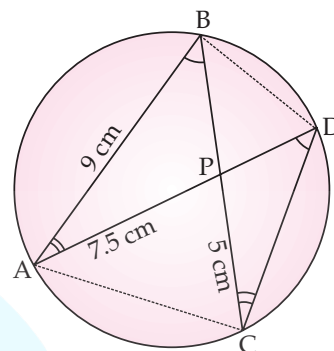
$$= \begin{bmatrix} 9 & 0 \\ 20 & 1 \end{bmatrix} + \begin{bmatrix} 24 & -12 \\ 38 & -20 \end{bmatrix} + \begin{bmatrix} 18 & -8 \\ -4 & 2 \end{bmatrix}$$

$$= \begin{bmatrix} 9+24+18 & 0-12-8 \\ 20+38-4 & 1-20+2 \end{bmatrix}$$

$$= \begin{bmatrix} 51 & -20 \\ 54 & -17 \end{bmatrix}$$

Ans.

(b) Given : $AB = 9 \text{ cm}, PA = 7.5 \text{ cm}$ and $PC = 5 \text{ cm}$



(i) In $\triangle PAB$ and $\triangle PCD$,

$$\angle ABC = \angle ADC$$

[Angles made by same arc AC or angles in the same segment are equal]

$$\angle BAD = \angle BCD$$

[Angles made by same arc BD]

$$\triangle PAB \sim \triangle PCD$$

[By AA similarity axiom]

Hence Proved.

(ii) \therefore Ratio of corresponding sides of similar triangles is equal.

$$\therefore \frac{AB}{CD} = \frac{PA}{PC} = \frac{PB}{PD}$$

$$\Rightarrow \frac{9}{CD} = \frac{7.5}{5} = \frac{PB}{PD}$$

$$\Rightarrow CD = \frac{9 \times 5}{7.5} = 6 \text{ cm}$$

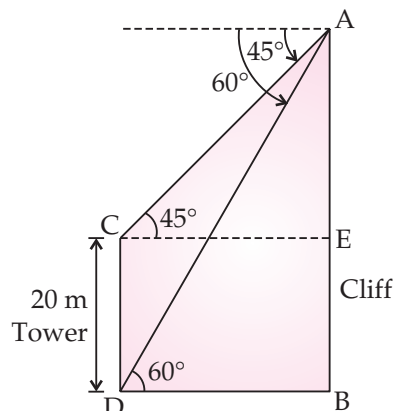
Ans

$$(iii) \frac{ar(\triangle PAB)}{ar(\triangle PCD)} = \frac{AB^2}{CD^2}$$

$$= \frac{9^2}{6^2} = \frac{81}{36} = \frac{9}{4}$$

Ans.

(c) Let AB be the cliff and CD be the tower.



Also, let $DB = CE = x$ m and $AB = h$ m

(i) In $\triangle ABD$,

$$\tan 60^\circ = \frac{AB}{DB}$$

$$\sqrt{3} = \frac{h}{x}$$

$$h = x\sqrt{3} \quad \dots(i)$$

And, in $\triangle ACE$,

$$\tan 45^\circ = \frac{AE}{CE}$$

$$\Rightarrow 1 = \frac{AB - BE}{x}$$

$$\Rightarrow 1 = \frac{h - 20}{x}$$

$$x = h - 20 \quad \dots(ii)$$

Putting the value of x in equation (i), we get

$$h = (h - 20)\sqrt{3}$$

$$\Rightarrow h = \sqrt{3}h - 20\sqrt{3}$$

$$\Rightarrow \sqrt{3}h - h = 20\sqrt{3}$$

$$\Rightarrow h(\sqrt{3} - 1) = 20\sqrt{3}$$

$$\Rightarrow h = \frac{20\sqrt{3}}{\sqrt{3} - 1} \times \frac{\sqrt{3} + 1}{\sqrt{3} + 1}$$

$$= \frac{20\sqrt{3}(\sqrt{3} + 1)}{3 - 1}$$

$$= 10(3 + \sqrt{3}) = 10(3 + 1.732)$$

$$= 10 \times 4.732$$

$$= 47.32 \text{ m}$$

Hence, the height of cliff is 47.32 m.

(ii) Putting the value of h in equation (ii), we get

$$x = h - 20 = 47.32 - 20$$

$$= 27.32$$

Hence, the distance between the cliff and the tower is 27.32 m.

Ans.

Ans.

Solution 7.

(a) Given lines are,

$$5x - 3y + 2 = 0$$

and $6x - py + 7 = 0$

Now, $5x - 3y + 2 = 0$

$$\Rightarrow 3y = 5x + 2$$

$$\Rightarrow y = \frac{5}{3}x + \frac{2}{3}$$

$$\therefore \text{Slope } (m_1) = \frac{5}{3}$$

and $6x - py + 7 = 0$

$$\Rightarrow py = 6x + 7$$

$$\Rightarrow y = \frac{6}{p}x + \frac{7}{p}$$

$$\therefore \text{Slope } (m_2) = \frac{6}{p}$$

Since, given lines are perpendicular to each other,

$$\text{So, } m_1 \times m_2 = -1$$

$$\frac{5}{3} \times \frac{6}{p} = -1$$

$$\Rightarrow p = -10$$

$$\text{Now, slope } (m_2) = \frac{6}{p} = \frac{6}{-10} = -\frac{3}{5}$$

\therefore Slopes of parallel lines are equal.

$$\text{So, slope of required line is } \left(-\frac{3}{5}\right).$$

Now, equation of required line is

$$\frac{y - y_1}{x - x_1} = m$$

$$\Rightarrow \frac{y + 1}{x + 2} = -\frac{3}{5}$$

$$\Rightarrow 5y + 5 = -3x - 6$$

$$\Rightarrow 3x + 5y + 5 + 6 = 0$$

$$\Rightarrow 3x + 5y + 11 = 0$$

Ans.

(b) Given : $\frac{x^2 + 2x}{2x + 4} = \frac{y^2 + 3y}{3y + 9}$

Using componendo and dividendo,

$$\frac{x^2 + 2x + 2x + 4}{x^2 + 2x - 2x - 4} = \frac{y^2 + 3y + 3y + 9}{y^2 + 3y - 3y - 9}$$

$$\Rightarrow \frac{x^2 + 4x + 4}{x^2 - 4} = \frac{y^2 + 6y + 9}{y^2 - 9}$$

$$\Rightarrow \frac{(x + 2)^2}{(x - 2)(x + 2)} = \frac{(y + 3)^2}{(y - 3)(y + 3)}$$

$$\Rightarrow \frac{x + 2}{x - 2} = \frac{y + 3}{y - 3}$$

Again, using componendo and dividendo

$$\frac{x + 2 + x - 2}{x + 2 - x + 2} = \frac{y + 3 + y - 3}{y + 3 - y + 3}$$

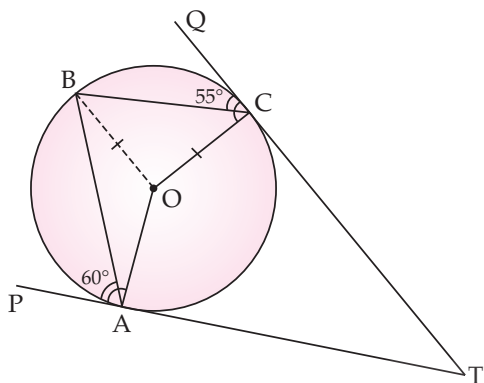
$$\Rightarrow \frac{2x}{4} = \frac{2y}{6}$$

$$\Rightarrow \frac{x}{y} = \frac{4}{6} = \frac{2}{3}$$

Hence, $x : y = 2 : 3$

Ans.

(c) Given : $\angle BCQ = 55^\circ$ and $\angle BAP = 60^\circ$



(i) $\angle OAP = 90^\circ$ [\because Tangent is \perp to radius]

$$\Rightarrow \angle OAB + \angle PAB = 90^\circ$$

$$\Rightarrow \angle OAB + 60^\circ = 90^\circ$$

$$\Rightarrow \angle OAB = 90^\circ - 60^\circ = 30^\circ$$

Now, in $\triangle AOB$

$$OA = OB$$

[Radii of same circle]

$$\therefore \angle OBA = \angle OAB = 30^\circ$$

[Equal angles opposite to equal sides]

Now, $\angle OCQ = 90^\circ$ [\because Tangent \perp radius]

$$\Rightarrow \angle OCB + \angle BCQ = 90^\circ$$

$$\Rightarrow \angle OCB + 55^\circ = 90^\circ$$

$$\Rightarrow \angle OCB = 90^\circ - 55^\circ = 35^\circ$$

In $\triangle OBC$,

$$OC = OB \text{ [Radii of same circle]}$$

$$\Rightarrow \angle OBC = \angle OCB = 35^\circ$$

Ans.

(ii) We know, angle subtended by an arc at the centre is double the angle subtended on the remaining part of the circle.

$$\begin{aligned} \therefore \angle AOC &= 2\angle ABC \\ &= 2(\angle OBA + \angle OBC) \\ &= 2(30^\circ + 35^\circ) \\ &= 2 \times 65^\circ = 130^\circ \end{aligned}$$

Ans.

(iii) In quad. AOCT,

$$\angle ATC + \angle OAT + \angle AOC + \angle OCT = 360^\circ$$

$$\Rightarrow \angle ATC + 90^\circ + 130^\circ + 90^\circ = 360^\circ$$

$$[\because \angle OAT = \angle OCT = 90^\circ]$$

$$\Rightarrow \angle ATC = 360^\circ - 310^\circ = 50^\circ$$

Ans.

Solution 8.

(a) Let k be the required term to be added.

$$\text{So, } p(x) = 2x^3 - 3x^2 - 8x + k$$

$\therefore p(x)$ leaves remainder 10 when divided by $2x + 1$,

$$\therefore p\left(-\frac{1}{2}\right) = 10$$

$$\Rightarrow 2 \times \left(-\frac{1}{2}\right)^3 - 3 \times \left(-\frac{1}{2}\right)^2 - 8 \times \left(-\frac{1}{2}\right) + k = 10$$

$$\Rightarrow 2 \times \left(-\frac{1}{8}\right) - 3 \times \frac{1}{4} + 4 + k = 10$$

$$\Rightarrow -\frac{1}{4} - \frac{3}{4} + 4 + k = 10$$

$$\Rightarrow k = 10 - 4 + \frac{1+3}{4}$$

$$\Rightarrow k = 6 + 1 = 7$$

$$\therefore k = 7$$

Ans.

(b) Here, $P = ₹ 750$, $n = 2$ years = 24 months and M.V. = ₹ 19125

$$\text{We know, } \text{M.V.} = P \times n + \frac{P \times n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$\Rightarrow 19125 = 750 \times 24$$

$$+ \frac{750 \times 24(24+1)}{2 \times 12} \times \frac{r}{100}$$

$$\Rightarrow 19125 = 18000 + 750 \times 25 \times \frac{r}{100}$$

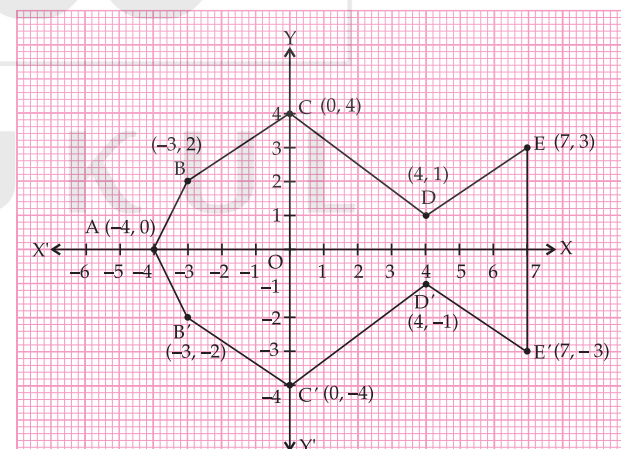
$$\Rightarrow 19125 - 18000 = \frac{750 \times r}{4}$$

$$\Rightarrow 1125 = \frac{750 \times r}{4}$$

$$\Rightarrow r = \frac{1125 \times 4}{750} = 6$$

Hence, the rate of interest is 6% p.a.

Ans.



Note : Instead of 1 cm = 1 unit, we have used 0.5 cm = 1 unit on both axes.

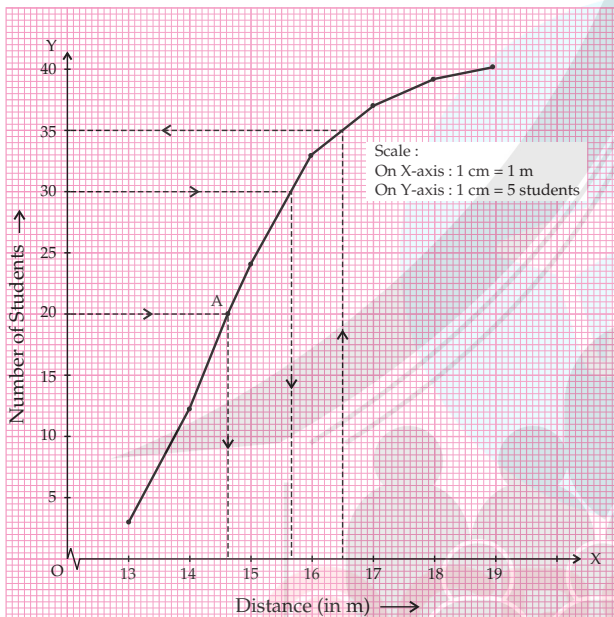
(i), (ii) and (iii) see graph.

(iv) Nonagon (irregular), polygon fish

Solution 9.

(a)

| Distance in m | Frequency (f) | c.f. |
|---------------|---------------|------|
| 12 – 13 | 3 | 3 |
| 13 – 14 | 9 | 12 |
| 14 – 15 | 12 | 24 |
| 15 – 16 | 9 | 33 |
| 16 – 17 | 4 | 37 |
| 17 – 18 | 2 | 39 |
| 18 – 19 | 1 | 40 |



Note : Instead of 2 cm = 1 m and 2 cm = 5 students, we have used 1 cm = 1 m and 1 cm = 5 students on X and Y axes, respectively.

$$\begin{aligned}
 \text{(i) Median} &= \left(\frac{N}{2}\right)^{\text{th}} \text{ term} \\
 &= \left(\frac{40}{2}\right)^{\text{th}} \text{ term} \\
 &= 20^{\text{th}} \text{ term}
 \end{aligned}$$

On the graph, through a point 20 on y-axis, draw a horizontal line which meets the ogive at point A. Through A, draw a vertical line which meets the x-axis at 14.7.

$$\therefore \text{Median} = 14.7$$

Ans.

$$\begin{aligned}
 \text{(ii) Upper quartile (Q}_3\text{)} &= \left(\frac{3N}{4}\right)^{\text{th}} \text{ term} \\
 &= \left(\frac{3 \times 40}{4}\right)^{\text{th}} \text{ term} \\
 &= 30^{\text{th}} \text{ term} \\
 &= 15.7
 \end{aligned}$$

Ans.

(iii) Number of students who cover more than $16\frac{1}{2}$ m = 40 – 35 = 5

Ans.

$$\text{(b) Given : } x = \frac{\sqrt{2a+1} + \sqrt{2a-1}}{\sqrt{2a+1} - \sqrt{2a-1}}$$

Using componendo and dividendo,

$$\begin{aligned}
 \frac{x+1}{x-1} &= \frac{\sqrt{2a+1} + \sqrt{2a-1}}{\sqrt{2a+1} - \sqrt{2a-1}} \\
 &= \frac{\sqrt{2a+1} + \sqrt{2a-1}}{-\sqrt{2a+1} + \sqrt{2a-1}} \\
 \Rightarrow \frac{x+1}{x-1} &= \frac{2\sqrt{2a+1}}{2\sqrt{2a-1}}
 \end{aligned}$$

$$\begin{aligned}
 \Rightarrow \left(\frac{x+1}{x-1}\right)^2 &= \left(\frac{\sqrt{2a+1}}{\sqrt{2a-1}}\right)^2 \\
 \text{[Squaring on both sides]}
 \end{aligned}$$

$$\Rightarrow \frac{x^2+1+2x}{x^2+1-2x} = \frac{2a+1}{2a-1}$$

Again, using componendo and dividendo,

$$\frac{x^2+1+2x+x^2+1-2x}{x^2+1+2x-x^2-1+2x} = \frac{2a+1+2a-1}{2a+1-2a+1}$$

$$\Rightarrow \frac{2(x^2+1)}{4x} = \frac{4a}{2}$$

$$\Rightarrow \frac{x^2+1}{2x} = 2a$$

$$\Rightarrow x^2+1 = 4ax$$

$$\Rightarrow x^2 - 4ax + 1 = 0$$

Hence Proved.**Solution 10.**

(a) Let the first term of an A.P. be a and the common difference be d .

$$\therefore a_6 = 4a \quad \text{[Given]}$$

$$\Rightarrow a + 5d = 4a$$

$$\Rightarrow 5d = 3a$$

$$\therefore a = \frac{5d}{3} \quad \dots(i)$$

$$\text{Also, } S_6 = 75 \quad \text{[Given]}$$

$$\Rightarrow \frac{6}{2} [2a + (6-1)d] = 75$$

$$\Rightarrow 3 \left[2 \times \frac{5d}{3} + 5d \right] = 75 \quad \text{[Using (i)]}$$

$$\Rightarrow 3 \left[\frac{10d + 15d}{3} \right] = 75$$

$$\Rightarrow 25d = 75$$

$$\therefore d = \frac{75}{25} = 3$$

$$\therefore a = \frac{5d}{3} = \frac{5 \times 3}{3} = 5$$

$$\text{Hence, } a = 5 \text{ and } d = 3$$

Ans.

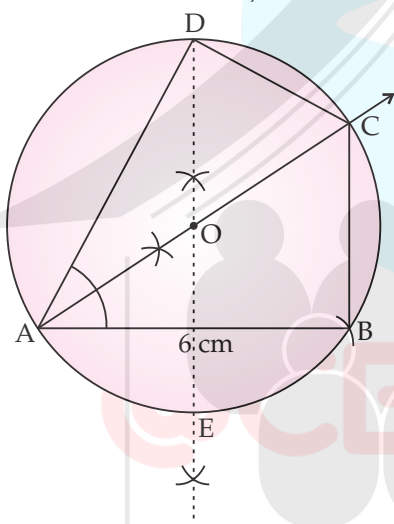
(b) Let the two natural numbers be x and y such that $x > y$.

$$\begin{aligned}
 \text{Then,} \quad & x - y = 7 \\
 \Rightarrow & x = 7 + y \quad \dots(i) \\
 \text{and} \quad & xy = 450 \\
 \Rightarrow & (7 + y)y = 450 \quad [\text{Using (i)}] \\
 \Rightarrow & y^2 + 7y - 450 = 0 \\
 \Rightarrow & y^2 + 25y - 18y - 450 = 0 \quad (\text{on factorisation}) \\
 \Rightarrow & y(y + 25) - 18(y + 25) = 0 \\
 \Rightarrow & (y + 25)(y - 18) = 0 \\
 \Rightarrow & y = -25 \quad [\text{Neglected}] \\
 \text{or} \quad & y = 18 \\
 \therefore & y = 18 \\
 \therefore & x = 7 + 18 = 25
 \end{aligned}$$

Hence, the numbers are 25 and 18.

(c) Steps of construction :

1. Draw a circle of radius 4.5 cm.
2. Take a point A on the circle. Taking A as centre, draw an arc of radius 6 cm, which cuts circle at B.



3. Join AB.

(i) Draw perpendicular bisector of AB which meets the circle at D and E.

Thus, DE is the required locus.

(ii) Join AD and draw angle bisector of $\angle DAB$ which meets the circle at C.

Thus, AC is the required locus.

(iii) Length of side CD = 5 cm.

Solution 11.

(a) Given : Scale = 1 : 50

(i) Let the actual height of the building be h m.

$$\therefore \frac{0.8}{h} = \frac{1}{50}$$

$$\Rightarrow h = 50 \times 0.8 = 40 \text{ m}$$

Ans.

(ii) Let the floor area of the model be $x \text{ m}^2$.

$$\therefore \frac{x}{20} = \left(\frac{1}{50}\right)^2$$

$$\Rightarrow \frac{x}{20} = \frac{1}{2500}$$

$$\Rightarrow x = \frac{20}{2500} \text{ m}^2 = 0.008 \text{ m}^2 \text{ or } 80 \text{ cm}^2$$

Ans.

(b) Given : Height of cylinder (h) = 28 cm

Diameter of cylinder = 6 cm

$$\Rightarrow \text{Radius of cylinder } (r) = \frac{6}{2} = 3 \text{ cm}$$

Also, height of cones (H) = 10.5 cm

And, diameter of cones = 6 cm

$$\Rightarrow \text{Radius of cones } (R) = \frac{6}{2} = 3 \text{ cm}$$

Now, volume of solid cylinder = $\pi r^2 h$

$$= \frac{22}{7} \times 3^2 \times 28$$

$$= \frac{22}{7} \times 9 \times 28$$

$$= 792 \text{ cm}^3$$

And, volume of two cones

$$= 2 \times \frac{1}{3} \pi R^2 H$$

$$= 2 \times \frac{1}{3} \times \frac{22}{7} \times 3^2 \times 10.5$$

$$= 198 \text{ cm}^3$$

So, volume of the remaining solid

$$= (792 - 198) \text{ cm}^3$$

$$= 594 \text{ cm}^3$$

Ans.

(c) To prove :

$$\left(\frac{1 - \tan \theta}{1 - \cot \theta}\right)^2 = \tan^2 \theta$$

$$\text{Taking L.H.S.} = \left(\frac{1 - \tan \theta}{1 - \cot \theta}\right)^2$$

$$= \left(\frac{1 - \tan \theta}{1 - \frac{1}{\tan \theta}}\right)^2$$

$$= \left(\frac{1 - \tan \theta}{\frac{\tan \theta - 1}{\tan \theta}}\right)^2$$

$$= \left(\frac{-\tan \theta(1 - \tan \theta)}{1 - \tan \theta}\right)^2$$

$$= (-\tan \theta)^2$$

$$= \tan^2 \theta$$

$$= \text{R.H.S.}$$

Hence Proved.

••

QUESTIONS

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

- (a) Solve the following inequation and write down the solution set : [3]

$$11x - 4 < 15x + 4 \leq 13x + 14, x \in W$$

Represent the solution on a real number line.

- (b) A man invests ₹ 4500 in shares of a company which is paying 7.5% dividend. If ₹ 100 shares are available at a discount of 10%. [3]

Find :

- (i) Number of shares he purchases.
(ii) His annual income.
(c) In a class of 40 students, marks obtained by the students in a class test (out of 10) are given below : [4]

| Marks | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------------------|---|---|---|---|---|----|---|---|---|----|
| Number of Students | 1 | 2 | 3 | 3 | 6 | 10 | 5 | 4 | 3 | 3 |

Calculate the following for the given distribution :

- (i) Median
(ii) Mode

Question 2.

- (a) Using the factor theorem, show that $(x - 2)$ is a factor of $x^3 + x^2 - 4x - 4$. Hence factorise the polynomial completely. [3]

- (b) Prove that : [3]

$$(\operatorname{cosec} \theta - \sin \theta)(\sec \theta - \cos \theta)(\tan \theta + \cot \theta) = 1$$

- (c) In an Arithmetic Progression (A.P.) the fourth and sixth terms are 8 and 14 respectively. Find the : [4]

- (i) first term
(ii) common difference
(iii) sum of the first 20 terms

Question 3.

- (a) Simplify : [3]

$$\sin A \begin{bmatrix} \sin A & -\cos A \\ \cos A & \sin A \end{bmatrix} + \cos A \begin{bmatrix} \cos A & \sin A \\ -\sin A & \cos A \end{bmatrix}$$

- (b) M and N are two points on the X-axis and Y-axis respectively. P(3, 2) divides the line segment MN in the ratio 2 : 3. [3]

Find :

- (i) the coordinates of M and N

- (ii) slope of the line MN.

- (c) A solid metallic sphere of radius 6 cm is melted and made into a solid cylinder of height 32 cm. Find the : [4]

- (i) radius of the cylinder

- (ii) curved surface area of the cylinder

(Take $\pi = 3.1$)

Question 4.

- (a) The following numbers, $K + 3$, $K + 2$, $3K - 7$ and $2K - 3$ are in proportion. Find K. [3]

- (b) Solve for x the quadratic equation $x^2 - 4x - 8 = 0$.

Give your answer correct to three significant figures. [3]

- (c) Use ruler and compass only for answering this question. [4]

Draw a circle of radius 4 cm. Mark the centre as O. Mark a point P outside the circle at a distance of 7 cm from the centre. Construct two tangents to the circle from the external point P.

Measure and write down the length of any one tangent. [4]

SECTION—B (40 Marks)

(Attempt any **four** questions from this Section)

Question 5.

- (a) There are 25 discs numbered 1 to 25. They are put in a closed box and shaken thoroughly. A disc is drawn at random from the box. [3]

Find the probability that the number on the disc is :

- (i) an odd number
(ii) divisible by 2 and 3 both
(iii) a number less than 16.

- (b) Rekha opened a recurring deposit account for 20 months. The rate of interest is 9% per annum and Rekha receives ₹ 441 as interest at the time of maturity. Find the amount Rekha deposited each month. [3]

- (c) Use a graph sheet for this question.

Take 1 cm = 1 unit along both X- and Y-axis. [4]

(i) Plot the following points :

$A(0, 5)$, $B(3, 0)$, $C(1, 0)$ and $D(1, -5)$

(ii) Reflect the points B , C and D on the Y axis and name them as B' , C' and D' respectively.

(iii) Write down the coordinates of B' , C' and D' .

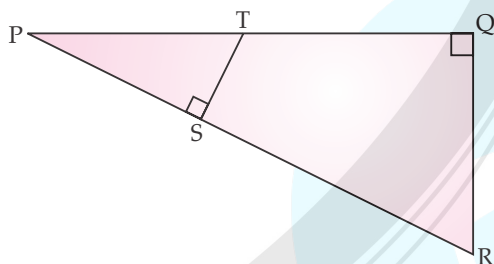
(iv) Join the points A , B , C , D , D' , C' , B' , A in order and give a name to the closed figure $ABCD D' C' B'$.

Question 6.

(a) In the given figure, $\angle PQR = \angle PST = 90^\circ$, $PQ = 5$ cm and $PS = 2$ cm. [3]

(i) Prove that $\triangle PQR \sim \triangle PST$.

(ii) Find-Area of $\triangle PQR$: Area of quadrilateral $SRQT$.



(b) The first and last term of a Geometrical Progression (G.P.) are 3 and 96 respectively. If the common ratio is 2, find : [3]

(i) 'n' the number of terms of the G.P.

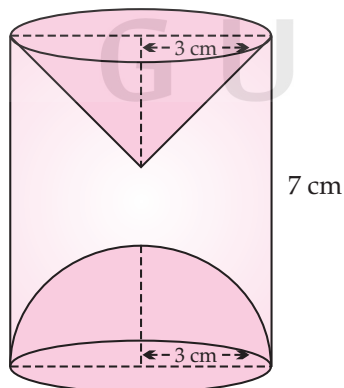
(ii) Sum of the n terms.

(c) A hemispherical and a conical hole is scooped out of a solid wooden cylinder. Find the volume of the remaining solid where the measurements are as follows :

The height of the solid cylinder is 7 cm, radius of each of hemisphere, cone and cylinder is 3 cm. Height of cone is 3 cm.

Give your answer correct to the nearest whole number.

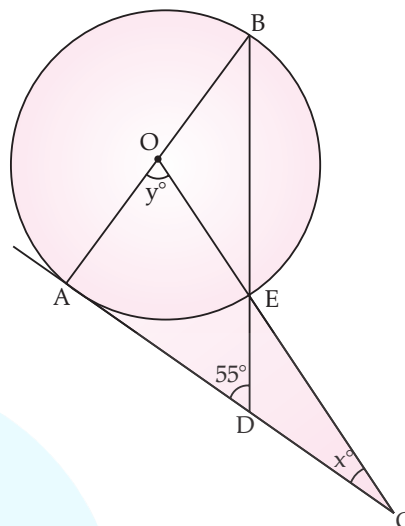
(Take $\pi = \frac{22}{7}$)



Question 7.

(a) In the given figure AC is a tangent to the circle with centre O .

If $\angle ADB = 55^\circ$, find x and y . Give reasons for your answer. [3]



(b) The model of a building is constructed with the scale factor 1 : 30. [3]

(i) If the height of the model is 80 cm, find the actual height of the building in meters.

(ii) If the actual volume of a tank at the top of the building is 27 m^3 , find the volume of the tank on the top of the model.

(c) Given $\begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix} M = 6 I$, where M is a matrix and I is unit matrix of order 2×2 . [4]

(i) State the order of matrix M .

(ii) Find the matrix M .

Question 8.

(a) The sum of the first three terms of an Arithmetic Progression (A.P.) is 42 and the product of the first and third term is 52. Find the first term and the common difference. [3]

(b) The vertices of a $\triangle ABC$ are $A(3, 8)$, $B(-1, 2)$ and $C(6, -6)$. Find : [3]

(i) Slope of BC .

(ii) Equation of a line perpendicular to BC and passing through A .

(c) Using ruler and a compass only construct a semicircle with diameter $BC = 7$ cm. Locate a point A on the circumference of the semicircle such that A is equidistant from B and C . Complete the cyclic quadrilateral $ABCD$, such that D is equidistant from AB and BC . Measure $\angle ADC$ and write it down. [4]

Question 9.

(a) The data on the number of patients attending a hospital in a month are given below. Find the average (mean) number of patients attending the hospital in a month by using the shortcut method.

Take the assumed mean as 45. Give your answer correct to 2 decimal places. [3]

| Number of patients | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 |
|--------------------|-------|-------|-------|-------|-------|-------|
| Number of Days | 5 | 2 | 7 | 9 | 2 | 5 |

(b) Using properties of proportion solve for x , given

$$\frac{\sqrt{5x} + \sqrt{2x-6}}{\sqrt{5x} - \sqrt{2x-6}} = 4$$

[3]

(c) Sachin invests ₹ 8500 in 10% ₹ 100 shares at ₹ 170. He sells the shares when the price of each share rises by ₹ 30. He invests the proceeds in 12% ₹ 100 shares at ₹ 125. Find : [4]

(i) the sale proceeds.

(ii) the number of ₹ 125 shares he buys.

(iii) the change in his annual income.

Question 10.

(a) Use graph paper for this question.

The marks obtained by 120 students in an English test are given below : [6]

| Marks | Number of students |
|----------|--------------------|
| 0 – 10 | 5 |
| 10 – 20 | 9 |
| 20 – 30 | 16 |
| 30 – 40 | 22 |
| 40 – 50 | 26 |
| 50 – 60 | 18 |
| 60 – 70 | 11 |
| 70 – 80 | 6 |
| 80 – 90 | 4 |
| 90 – 100 | 3 |

Draw the ogive and hence, estimate :

(i) the median marks.

(ii) the number of students who did not pass test if the pass percentage was 50.

(iii) the upper quartile marks.

(b) A man observes the angle of elevation of the top of the tower to be 45° . He walks towards it in a horizontal line through its base. On covering 20 m the angle of elevation changes to 60° . Find the height of the tower correct to 2 significant figures. [4]

Question 11.

(a) Using the Remainder Theorem, find the remainders obtained when $x^3 + (kx + 8)x + k$ is divided by $x + 1$ and $x - 2$.

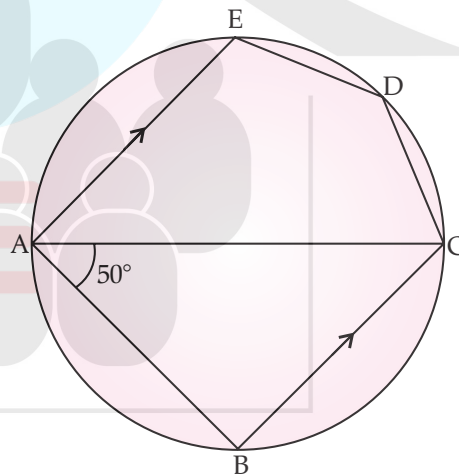
Hence find k if the sum of the two remainders is 1. [3]

(b) The product of two consecutive natural numbers which are multiples of 3 is equal to 810. Find the two numbers. [3]

(c) In the given figure, ABCDE is a pentagon inscribed in a circle such that AC is a diameter and side $BC \parallel AE$. If $\angle BAC = 50^\circ$, find giving reasons : [4]

(i) $\angle ACB$ (ii) $\angle EDC$ (iii) $\angle BEC$

Hence, prove that BE is also a diameter.



ANSWERS

SECTION—A

Solution 1.

(a) Given, $11x - 4 < 15x + 4 \leq 13x + 14$, $x \in W$.

$$\therefore 11x - 4 < 15x + 4 \text{ and } 15x + 4 \leq 13x + 14$$

$$\Rightarrow 11x - 15x < 4 + 4 \text{ and } 15x - 13x \leq 14 - 4$$

$$\Rightarrow -4x < 8 \text{ and } 2x \leq 10$$

$$\Rightarrow \frac{-4x}{-4} > \frac{8}{-4} \text{ and } \frac{2x}{2} \leq \frac{10}{2}$$

$$\Rightarrow x > -2 \text{ and } x \leq 5$$

$$\therefore -2 < x \leq 5$$

$$\therefore \text{Solution set } (W) = \{0, 1, 2, 3, 4, 5\}$$



(b) Given, Investment = ₹ 4500

Rate of dividend = 7.5%

Nominal value = ₹ 100, Discount = 10%

$$\therefore \text{Market value} = ₹ \left(100 - \frac{10}{100} \times 100 \right) = ₹ 90$$

(i) Number of shares purchased

$$= \frac{\text{Investment}}{\text{Market Value}}$$

$$= \frac{4500}{90} = ₹ 50$$

Ans.

$$(ii) \text{ Dividend per share} = \frac{7.5}{100} \times 100 = ₹ 7.50$$

$$\begin{aligned} \therefore \text{Annual income} &= \text{Dividend per share} \\ &\quad \times \text{Number of shares} \\ &= 7.50 \times 50 \\ &= ₹ 375 \end{aligned}$$

Ans.

(c)

| Marks | Number of Students | Cumulative Frequency |
|-------|--------------------|----------------------|
| 1 | 1 | 1 |
| 2 | 2 | 3 |
| 3 | 3 | 6 |
| 4 | 3 | 9 |
| 5 | 6 | 15 |
| 6 | 10 | 25 |
| 7 | 5 | 30 |
| 8 | 4 | 34 |
| 9 | 3 | 37 |
| 10 | 3 | 40 |
| | $n = 40$ | |

Here, $n = 40$ (even)

(i) Median

$$\begin{aligned} &= \frac{\frac{n}{2} \text{ observation} + \left(\frac{n}{2} + 1\right) \text{ observation}}{2} \\ &= \frac{20^{\text{th}} \text{ observation} + 21^{\text{st}} \text{ observation}}{2} \\ &= \frac{6 + 6}{2} = 6 \end{aligned}$$

(ii) \therefore The highest frequency is 10. \therefore Mode = 6

Solution 2.

(a) Let $f(x) = x^3 + x^2 - 4x - 4$ If $(x - 2)$ is a factor of $f(x)$, then

$$f(2) = 0$$

$$\begin{aligned} \text{Now, } f(2) &= 2^3 + 2^2 - 4 \times 2 - 4 \\ &= 8 + 4 - 8 - 4 \\ &= 0 \end{aligned}$$

 $\therefore (x - 2)$ is a factor of $f(x)$.

$$\begin{array}{r} x^2 + 3x + 2 \\ x - 2 \overline{) x^3 + x^2 - 4x - 4} \\ \underline{x^3 - 2x^2} \\ 3x^2 - 4x \\ \underline{3x^2 + 6x} \\ 2x - 4 \\ \underline{2x - 4} \\ 0 \end{array}$$

$$\begin{aligned} \text{Now, } x^2 + 3x + 2 &= x^2 + 2x + x + 2 \\ &= x(x + 2) + 1(x + 2) \\ &= (x + 2)(x + 1) \end{aligned}$$

$$\therefore f(x) = (x + 1)(x + 2)(x - 2) \quad \text{Ans.}$$

(b) To prove :

$$(\operatorname{cosec} \theta - \sin \theta)(\sec \theta - \cos \theta)(\tan \theta + \cot \theta) = 1$$

$$\text{L.H.S.} = (\operatorname{cosec} \theta - \sin \theta)(\sec \theta - \cos \theta)$$

$$(\tan \theta + \cot \theta)$$

$$= \left(\frac{1}{\sin \theta} - \sin \theta \right) \left(\frac{1}{\cos \theta} - \cos \theta \right) \left(\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} \right)$$

$$= \left(\frac{1 - \sin^2 \theta}{\sin \theta} \right) \left(\frac{1 - \cos^2 \theta}{\cos \theta} \right) \left(\frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta} \right)$$

$$= \frac{\cos^2 \theta}{\sin \theta} \times \frac{\sin^2 \theta}{\cos \theta} \times \frac{1}{\sin \theta \cos \theta}$$

$$= \frac{\cos^2 \theta}{\cos^2 \theta} \times \frac{\sin^2 \theta}{\sin^2 \theta}$$

$$= 1 = \text{R.H.S.}$$

Hence Proved.

(c) Let a and d be the first term and common difference of the given A.P. respectively

$$\text{Then, } a_4 = 8 \text{ and } a_6 = 14$$

$$\Rightarrow a + 3d = 8 \quad \dots(i)$$

$$\text{and } a + 5d = 14 \quad \dots(ii)$$

Subtracting equation (i) from (ii), we get

$$2d = 6$$

$$\Rightarrow d = 3$$

Putting $d = 3$ in equation (i), we get

$$a + 3 \times 3 = 8$$

$$\Rightarrow a = 8 - 9 = -1$$

(i) First term (a) = -1.

Ans.

(ii) Common difference (d) = 3.

Ans.

(iii) Sum of first 20 terms (S_{20})

$$\therefore S_n = \frac{n}{2} [2a + (n - 1)d]$$

$$\therefore S_{20} = \frac{20}{2} [2 \times (-1) + (20 - 1) \times 3]$$

$$= 10(-2 + 57)$$

$$= 550$$

Ans.

Solution 3.

$$(a) \sin A \left[\frac{\sin A - \cos A}{\cos A} \right] + \cos A \left[\frac{\cos A - \sin A}{-\sin A} \right]$$

$$= \left[\frac{\sin^2 A}{\sin A \cos A} - \frac{\sin A \cos A}{\sin^2 A} \right]$$

$$+ \left[\frac{\cos^2 A}{-\sin A \cos A} - \frac{\sin A \cos A}{\cos^2 A} \right]$$

$$\begin{aligned} &= \left[\frac{\sin^2 A + \cos^2 A}{\sin A \cos A - \sin A \cos A} \right. \\ &\quad \left. - \frac{\sin A \cos A + \sin A \cos A}{\sin^2 A + \cos^2 A} \right] \end{aligned}$$

$$= \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$[\because \sin^2 A + \cos^2 A = 1] \quad \text{Ans.}$$

- (b) Let $P(3, 2)$ divides the line segment joining $M(a, 0)$ and $N(0, b)$ in the ratio $2 : 3$.

Here, $x = 3, x_1 = a, x_2 = 0, m_1 = 2$

$$y = 2, y_1 = 0, y_2 = b, m_2 = 3$$

Now, $x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$

$$\Rightarrow 3 = \frac{2 \times 0 + 3 \times a}{2 + 3}$$

$$\Rightarrow 3 \times 5 = 0 + 3a$$

$$\Rightarrow a = \frac{15}{3}$$

$$\Rightarrow a = 5$$

and $y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$

$$\Rightarrow 2 = \frac{2 \times b + 3 \times 0}{2 + 3}$$

$$\Rightarrow 2 \times 5 = 2b + 0$$

$$\Rightarrow b = \frac{10}{2}$$

$$\Rightarrow b = 5$$

- (i) The coordinates of $M = (a, 0) = (5, 0)$.

The coordinates of $N = (0, b) = (0, 5)$.

(ii) Slope of line $MN = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 0}{0 - 5} = -1$.

Ans.

- (c) Given, radius of sphere (r_1) = 6 cm and height of cylinder (h) = 32 cm

$$\therefore \text{Volume of sphere } (V_1) = \frac{4}{3} \pi r_1^3$$

$$= \frac{4}{3} \pi \times (6)^3 \text{ cm}^3$$

Let radius of cylinder be r_2 .

$$\therefore \text{Volume of cylinder, } (V_2) = \pi r_2^2 h$$

$$= \pi r_2^2 \times 32 \text{ cm}^3$$

$$\therefore V_1 = V_2$$

$$\Rightarrow \frac{4}{3} \pi \times 6^3 = \pi r_2^2 \times 32$$

$$\Rightarrow r_2^2 = \frac{4 \times \pi \times 6^3}{3 \times \pi \times 32}$$

$$\Rightarrow r_2^2 = 9$$

$$\Rightarrow r_2 = 3$$

- (i) Radius of the cylinder, (r_2) = 3 cm

- (ii) Curved surface area of the cylinder

$$= 2\pi r_2 h$$

$$= 2 \times 3.1 \times 3 \times 32$$

$$= 595.2 \text{ cm}^2$$

Ans.

Ans.

Solution 4.

- (a) Given, $K + 3, K + 2, 3K - 7$ and $2K - 3$ are in proportion.

$$\therefore \frac{K + 3}{K + 2} = \frac{3K - 7}{2K - 3}$$

$$\Rightarrow (K + 2)(3K - 7) = (K + 3)(2K - 3)$$

$$\Rightarrow 3K^2 - 7K + 6K - 14 = 2K^2 - 3K + 6K - 9$$

$$\Rightarrow 3K^2 - 2K^2 - K - 3K - 14 + 9 = 0$$

$$\Rightarrow K^2 - 4K - 5 = 0$$

$$\Rightarrow K^2 - 5K + K - 5 = 0$$

$$\Rightarrow K(K - 5) + 1(K - 5) = 0$$

$$\Rightarrow (K - 5)(K + 1) = 0$$

$$\Rightarrow K - 5 = 0 \text{ or } K + 1 = 0$$

$$\therefore K = 5 \text{ or } -1. \quad \text{Ans.}$$

- (b) Given quadratic equation is $x^2 - 4x - 8 = 0$.

Comparing it with $ax^2 + bx + c = 0$, we get

$$a = 1, b = -4 \text{ and } c = -8$$

$$\therefore x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-(-4) \pm \sqrt{(-4)^2 - 4 \times 1 \times (-8)}}{2 \times 1}$$

$$= \frac{4 \pm \sqrt{16 + 32}}{2} = \frac{4 \pm \sqrt{48}}{2} = \frac{4 \pm 6.928}{2}$$

$$= \frac{4 + 6.928}{2} \text{ or } \frac{4 - 6.928}{2}$$

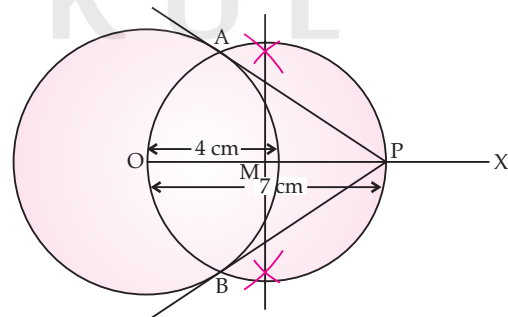
$$= \frac{10.928}{2} \text{ or } \frac{-2.928}{2}$$

$$= 5.464 \text{ or } -1.464$$

$\therefore x = 5.464 \text{ or } -1.464$ (correct to 3 significant figures).

Ans.

- (c) Given, radius = 4 cm and $OP = 7$ cm



Steps of constructions :

- (i) Draw a circle of radius 4 cm with centre at O.

- (ii) Draw a line OX and cut-off $OP = 7$ cm.

- (iii) Bisect OP at M.

(iv) With M as centre, draw a circle passing through the points O and P to cut the previous circle at A and B .

(v) Join P with A and B . Hence, AP and BP are the required tangents.

\therefore The length of tangent, $AP = 5.7$ cm **Ans.**

SECTION—B

Solution 5.

(a) Given, Total number of outcomes i.e., $n(S) = 25$

(i) Let A be the event of getting an odd number.

$$\therefore A = \{1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25\}$$

$$\therefore n(A) = 13$$

$$\therefore P(A) = \frac{n(A)}{n(S)} = \frac{13}{25} \quad \text{Ans.}$$

(ii) Let B be the event of getting a number divisible by 2 and 3 both.

$$\therefore B = \{6, 12, 18, 24\}$$

$$\therefore n(B) = 4$$

$$\therefore P(B) = \frac{n(B)}{n(S)} = \frac{4}{25} \quad \text{Ans.}$$

(iii) Let C be the event of getting a number less than 16.

$$\therefore C = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$$

$$\therefore n(C) = 15$$

$$\therefore P(C) = \frac{n(C)}{n(S)} = \frac{15}{25} = \frac{3}{5} \quad \text{Ans.}$$

(b) Given, number of months (n) = 20

Rate of interest (r) = 9% p.a.

Interest received (I) = ₹ 441

Let the monthly deposit be ₹ P .

$$\therefore I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

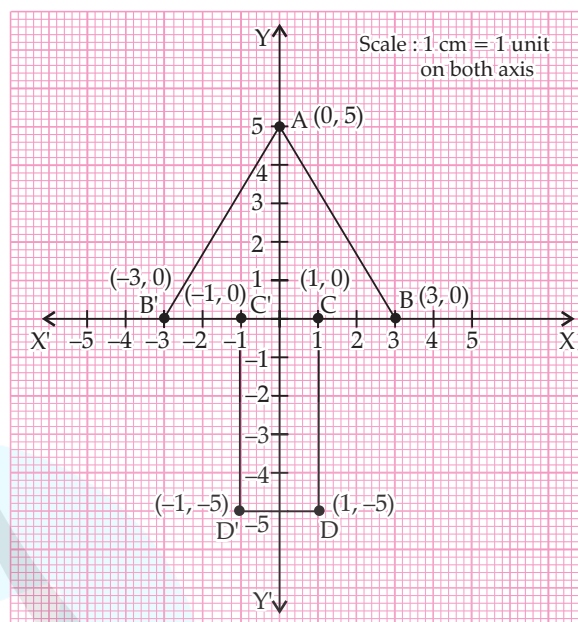
$$\Rightarrow 441 = P \times \frac{20(20+1)}{2 \times 12} \times \frac{9}{100}$$

$$\Rightarrow P = \frac{441 \times 2 \times 12 \times 100}{20 \times 21 \times 9} = ₹ 280$$

\therefore The required monthly deposit is ₹ 280. **Ans.**

(c) (i) The given points $A(0, 5)$, $B(3, 0)$, $C(1, 0)$ and $D(1, -5)$ are plotted on the graph.

(ii) The points B , C and D are reflected on the Y -axis as B' , C' and D' respectively.



(iii) The coordinates of

$$B' = (-3, 0), \quad C' = (-1, 0),$$

and

$$D' = (-1, -5) \quad \text{Ans.}$$

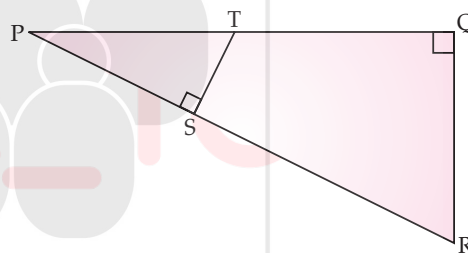
(iv) The name of the closed figure $ABCDD'C'B'$ is arrow or heptagon. **Ans.**

Solution 6.

(a) Given,

$$\angle PQR = \angle PST = 90^\circ,$$

$$PQ = 5 \text{ cm and } PS = 2 \text{ cm}$$



(i) In $\triangle PQR$ and $\triangle PST$,

$$\angle PQR = \angle PST = 90^\circ \quad (\text{Given})$$

$$\angle QPR = \angle SPT \quad (\text{Common})$$

$$\therefore \triangle PQR \sim \triangle PST \quad (\text{By AA axiom})$$

Hence Proved.

$$\begin{aligned} \text{(ii) } \frac{\text{Area of } \triangle PQR}{\text{Area of } \triangle PST} &= \frac{PQ^2}{PS^2} \quad (\because \triangle PQR \sim \triangle PST) \\ &= \frac{5^2}{2^2} = \frac{25}{4} \end{aligned}$$

Now,

$$\begin{aligned} &\frac{\text{Area of } \triangle PQR}{\text{Area of quadrilateral } SRQT} \\ &= \frac{\text{Area of } \triangle PQR}{\text{Area of } \triangle PQR - \text{Area of } \triangle PST} \\ &= \frac{25K}{25K - 4K} = \frac{25}{21} \quad \text{Ans.} \end{aligned}$$

- (b) Given, first term (a) = 3, Last term (a_n) = 96 and common ratio (r) = 2.

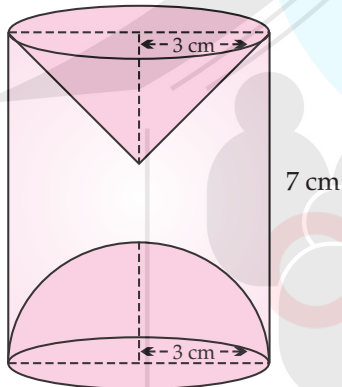
$$\begin{aligned} \text{(i) } \therefore a_n &= ar^{n-1} \\ \Rightarrow 96 &= 3 \times 2^{n-1} \\ \Rightarrow \frac{96}{3} &= 2^{n-1} \\ \Rightarrow 32 &= 2^{n-1} \\ \Rightarrow 2^5 &= 2^{n-1} \\ \Rightarrow n-1 &= 5 \Rightarrow n = 5+1 \Rightarrow n = 6. \quad \text{Ans.} \end{aligned}$$

$$\begin{aligned} \text{(ii) Sum of } n \text{ terms } (S_n) &= \frac{a(r^n - 1)}{r - 1} \\ &= \frac{3(2^6 - 1)}{2 - 1} \\ &= 3 \times 63 \\ &= 189 \quad \text{Ans.} \end{aligned}$$

- (c) Given, radius of each of hemisphere, cone and cylinder (r) = 3 cm.

Height of cylinder (h_1) = 7 cm

Height of cone (h_2) = 3 cm



The volume of the remaining solid
= Volume of cylinder - Volume of cone
- Volume of hemisphere

$$\begin{aligned} &= \pi r^2 h_1 - \frac{1}{3} \pi r^2 h_2 - \frac{2}{3} \pi r^3 \\ &= \pi r^2 \left(h_1 - \frac{1}{3} h_2 - \frac{2}{3} r \right) \\ &= \frac{22}{7} \times (3)^2 \left(7 - \frac{1}{3} \times 3 - \frac{2}{3} \times 3 \right) \\ &= \frac{22}{7} \times 9 \times 4 \\ &= 113.14 \approx 113 \text{ cm}^3 \\ &\text{(Correct to the nearest whole number)} \end{aligned}$$

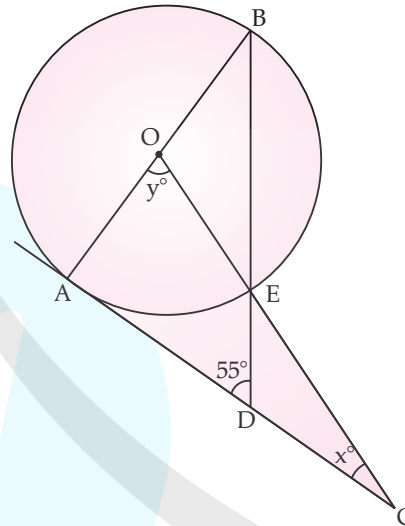
Solution 7.

- (a) Given, $\angle ADB = 55^\circ$, AC is a tangent,
 $\angle ACO = x^\circ$, $\angle AOE = y^\circ$

In $\triangle ABD$,

$$\begin{aligned} \therefore \angle BAD &= 90^\circ \quad (\because \text{Radius } OA \text{ is perpendicular to tangent } AC) \\ \text{and } \angle ABD + \angle BAD + \angle ADB &= 180^\circ \quad (\text{Angle sum property}) \end{aligned}$$

$$\begin{aligned} \Rightarrow \angle ABD + 90^\circ + 55^\circ &= 180^\circ \\ \Rightarrow \angle ABD &= 180^\circ - 145^\circ = 35^\circ \end{aligned}$$



$$\begin{aligned} \therefore \angle AOE &= 2 \times \angle ABD \\ (\text{Angle at centre is twice the angle at circumference}) \end{aligned}$$

$$\begin{aligned} \Rightarrow y^\circ &= 2 \times 35^\circ \\ \therefore y^\circ &= 70^\circ \end{aligned}$$

$$\begin{aligned} \text{In } \triangle AOC, \\ \angle ACO + \angle OAC + \angle AOC &= 180^\circ \quad (\text{Angle sum property}) \\ \Rightarrow x^\circ + 90^\circ + 70^\circ &= 180^\circ \quad (\angle OAC = 90^\circ, \text{ since radius is } \perp r \text{ to tangent}) \\ \Rightarrow x^\circ &= 180^\circ - 160^\circ \\ &= 20^\circ \end{aligned}$$

Hence, $x = 20^\circ$
and $y = 70^\circ$

- (b) Given, scale factor, $1 : k = 1 : 30$

(i) Actual height of the building = $k \times$ Height of the model

$$\begin{aligned} &= 30 \times 80 \text{ cm} \\ &= 2400 \text{ cm} \\ &= \frac{2400}{100} \text{ m} \\ &= 24 \text{ m} \end{aligned}$$

Ans.

Ans.

(ii) Actual volume of tank = $k^3 \times$ Volume of the model tank

$$\begin{aligned} \Rightarrow 27 \text{ m}^3 &= (30)^3 \times \text{Volume of the model tank} \end{aligned}$$

$$\begin{aligned}\Rightarrow \text{Volume of the model tank} &= \frac{27 \text{ m}^3}{30 \times 30 \times 30} \\ &= \frac{27 \times 100 \times 100 \times 100}{30 \times 30 \times 30} \text{ cm}^3 \\ &= 1000 \text{ cm}^3\end{aligned}$$

Ans.

(c) Given, $\begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix} M = 6I$

$$\Rightarrow \begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix} M = 6 \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix} M = \begin{bmatrix} 6 & 0 \\ 0 & 6 \end{bmatrix}$$

...(i)

(i) $(2 \times 2) (m \times n) = (2 \times 2) \rightarrow$ Order of matrix,
 $M = 2 \times 2.$

Ans.

(ii) Let, $M = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$

$$\therefore \begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix} \begin{bmatrix} a & b \\ c & d \end{bmatrix} = \begin{bmatrix} 6 & 0 \\ 0 & 6 \end{bmatrix}$$

[using (i)]

$$\Rightarrow \begin{bmatrix} 4a+2c & 4b+2d \\ -a+c & -b+d \end{bmatrix} = \begin{bmatrix} 6 & 0 \\ 0 & 6 \end{bmatrix}$$

$$\therefore 4a+2c=6$$

...(ii)

$$-a+c=0$$

...(iii) $\times 4$

Solving equations (ii) and (iii),

$$\begin{array}{r} 4a+2c=6 \\ -4a+4c=0 \\ \hline 6c=6 \end{array}$$

$$\Rightarrow c=1$$

From equation (iii),

$$-a+1=0$$

$$\Rightarrow a=1$$

and $4b+2d=0$

...(iv)

$$\Rightarrow -b+d=6$$

...(v) $\times 4$

Solving equations (iv) and (v),

$$\begin{array}{r} 4b+2d=0 \\ -4b+4d=24 \\ \hline 6d=24 \end{array}$$

$$\Rightarrow d=4$$

From equation (iv),

$$-b+4=6$$

$$\Rightarrow -b=2$$

$$\Rightarrow b=-2$$

$$\therefore M = \begin{bmatrix} 1 & -2 \\ 1 & 4 \end{bmatrix}$$

Ans.

Solution 8.

- (a) Let a and d be the first term and common difference respectively.

By first condition,

$$a_1 + a_2 + a_3 = 42$$

$$\Rightarrow a + a + d + a + 2d = 42$$

$$\Rightarrow 3a + 3d = 42$$

$$\Rightarrow 3(a + d) = 42$$

$$\Rightarrow a + d = \frac{42}{3} = 14$$

$$\Rightarrow d = 14 - a \quad \dots(i)$$

By second condition,

$$a_1 \times a_3 = 52$$

$$\Rightarrow a \times (a + 2d) = 52$$

$$\Rightarrow a^2 + 2ad = 52 \quad \dots(ii)$$

From equations (i) and (ii), we have

$$a^2 + 2a(14 - a) = 52$$

$$\Rightarrow a^2 + 28a - 2a^2 = 52$$

$$\Rightarrow -a^2 + 28a = 52$$

$$\Rightarrow a^2 - 28a + 52 = 0$$

$$\Rightarrow a^2 - 26a - 2a + 52 = 0$$

$$\Rightarrow a(a - 26) - 2(a - 26) = 0$$

$$\Rightarrow (a - 26)(a - 2) = 0$$

$$\Rightarrow a - 26 = 0 \text{ or } a - 2 = 0$$

$$\Rightarrow a = 26 \text{ or } a = 2$$

$$\therefore a = 26 \text{ or } 2$$

From equation (i),

$$\text{when } a = 26, d = 14 - 26 = -12$$

$$\text{and when } a = 2, d = 14 - 2 = 12$$

Then, $d = 12$ or -12

Ans.

- (b) Given, $A(3, 8), B(-1, 2)$ and $C(6, -6)$

$$\begin{aligned}\text{(i) Slope of } BC (m_1) &= \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 2}{6 - (-1)} \\ &= \frac{-8}{7}\end{aligned}$$

Ans.

(ii) Slope of a line perpendicular to BC (m)

$$\begin{aligned}&= -\frac{1}{m_1} \\ &= -\frac{1}{-8/7} = \frac{7}{8}\end{aligned}$$

Let the equation of the line perpendicular to BC and through A be

$$y - y_1 = m(x - x_1)$$

$$\Rightarrow y - 8 = \frac{7}{8}(x - 3)$$

$$\Rightarrow 8(y - 8) = 7(x - 3)$$

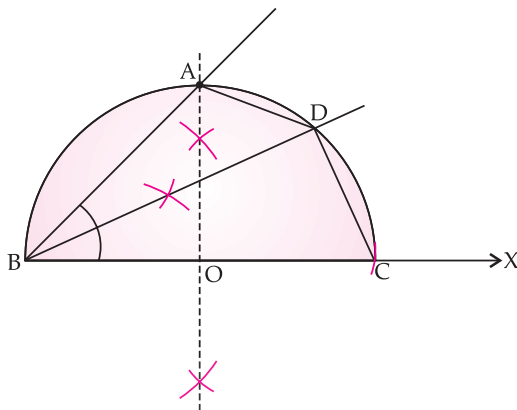
$$\Rightarrow 8y - 64 = 7x - 21$$

$$\Rightarrow 7x - 8y - 21 + 64 = 0$$

$$\Rightarrow 7x - 8y + 43 = 0$$

which is the required equation.

Ans.

(c) Given, $BC = 7 \text{ cm}$ 

Steps of construction :

1. Draw a line BX and cut off $BC = 7 \text{ cm}$.
2. Bisect BC at O and draw a semicircle with centre at O and passing through B and C .
3. Draw a perpendicular bisector of BC at O which intersects the semicircle at A .
4. Join AB and bisect $\angle ABC$ and the bisector cuts the semicircle at D .
5. Complete the cyclic quadrilateral $ABCD$ such that A is equidistant from B & C and D is equidistant from AB and BC .

$$\therefore \angle ADC = 135^\circ$$

Solution 9.(a) Given, assumed mean (A) = 45.

| Number of patients | Mid-value (x_i) | $d_i = x_i - A$ | Number of days (f_i) | $f_i d_i$ |
|--------------------|---------------------|-----------------|--------------------------|-------------------------|
| 10 - 20 | 15 | -30 | 5 | -150 |
| 20 - 30 | 25 | -20 | 2 | -40 |
| 30 - 40 | 35 | -10 | 7 | -70 |
| 40 - 50 | 45 | 0 | 9 | 0 |
| 50 - 60 | 55 | 10 | 2 | 20 |
| 60 - 70 | 65 | 20 | 5 | 100 |
| | | | $\Sigma f_i = 30$ | $\Sigma f_i d_i = -140$ |

$$\begin{aligned} \text{Mean} &= A + \frac{\Sigma f_i d_i}{\Sigma f_i} \\ &= 45 + \left(-\frac{140}{30} \right) \\ &= 45 - 4.667 \\ &= 40.333 \\ &= 40.33 \end{aligned}$$

(Correct to 2 decimal places) **Ans.**

$$(b) \text{ Given, } \frac{\sqrt{5x} + \sqrt{2x-6}}{\sqrt{5x} - \sqrt{2x-6}} = \frac{4}{1}$$

Applying componendo and dividendo,

$$\begin{aligned} \frac{(\sqrt{5x} + \sqrt{2x-6}) + (\sqrt{5x} - \sqrt{2x-6})}{(\sqrt{5x} + \sqrt{2x-6}) - (\sqrt{5x} - \sqrt{2x-6})} &= \frac{4+1}{4-1} \\ \Rightarrow \frac{\sqrt{5x} + \sqrt{2x-6} + \sqrt{5x} - \sqrt{2x-6}}{\sqrt{5x} + \sqrt{2x-6} - \sqrt{5x} + \sqrt{2x-6}} &= \frac{5}{3} \\ \Rightarrow \frac{2\sqrt{5x}}{2\sqrt{2x-6}} &= \frac{5}{3} \\ \Rightarrow \frac{\sqrt{5}}{\sqrt{2x-6}} &= \frac{5}{3} \end{aligned}$$

Squaring both sides, we get

$$\begin{aligned} \frac{5x}{2x-6} &= \frac{25}{9} \\ \Rightarrow 25(2x-6) &= 9 \times 5x \\ \Rightarrow 50x - 150 &= 45x \\ \Rightarrow 50x - 45x &= 150 \\ \Rightarrow 5x &= 150 \\ \Rightarrow x &= 30 \end{aligned}$$

Ans.

(c) Given, Investment = ₹ 8500,

Rate of dividend = 10%

Nominal Value = ₹ 100,

Market Value = ₹ 170

$$\begin{aligned} \therefore \text{Number of shares} &= \frac{\text{Investment}}{\text{Market Value}} \\ &= \frac{8500}{170} = 50 \end{aligned}$$

(i) Since the price of each share rises by ₹ 30,

Market Value of shares sold

$$= ₹ 170 + ₹ 30 = ₹ 200$$

$$\therefore \text{Sale proceeds} = ₹ 200 \times 50 = ₹ 10,000$$

Ans.

(ii) For new shares bought,

Investment = ₹ 10,000

Rate of dividend = 12%,

Nominal Value = ₹ 100,

and Market Value = ₹ 125.

 \therefore Number of shares bought

$$\begin{aligned} &= \frac{\text{Investment}}{\text{Market Value}} \\ &= \frac{10,000}{125} \\ &= ₹ 80 \end{aligned}$$

Ans.

(iii) Annual income from old shares

$$= \text{Dividend per share} \times \text{Number of shares}$$

$$= \frac{10}{100} \times 100 \times 50$$

$$= ₹ 500$$

Annual income from new shares

$$= \frac{12}{100} \times 100 \times 80$$

$$= ₹ 960$$

∴ The change in his annual income

$$= ₹ 960 - ₹ 500$$

$$= ₹ 460$$

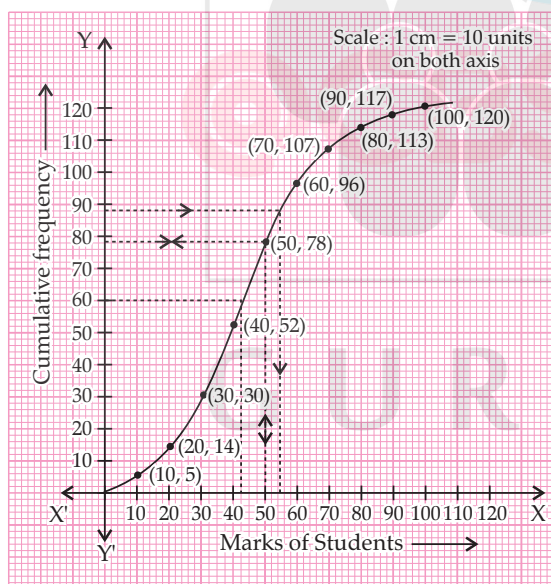
Solution 10.

(a)

| Marks | Number of students | Cumulative frequency |
|----------|--------------------|----------------------|
| 0 – 10 | 5 | 5 |
| 10 – 20 | 9 | 14 |
| 20 – 30 | 16 | 30 |
| 30 – 40 | 22 | 52 |
| 40 – 50 | 26 | 78 |
| 50 – 60 | 18 | 96 |
| 60 – 70 | 11 | 107 |
| 70 – 80 | 6 | 113 |
| 80 – 90 | 4 | 117 |
| 90 – 100 | 3 | 120 |

∴

$$N = 120$$



- (i) Median marks = $\frac{N}{2}$ th observation
- $$= \frac{120}{2} \text{ th observation}$$
- $$= 60\text{th observation}$$
- $$= 43 \text{ (from ogive)}$$

Ans.

- (ii) Number of students who did not pass

$$= 78 \text{ (from ogive)}$$

Ans.

- (iii) Upper quartile = $\frac{3N}{4}$ th observation

$$= \frac{3 \times 120}{4} \text{ th observation}$$

$$= 90\text{th observation}$$

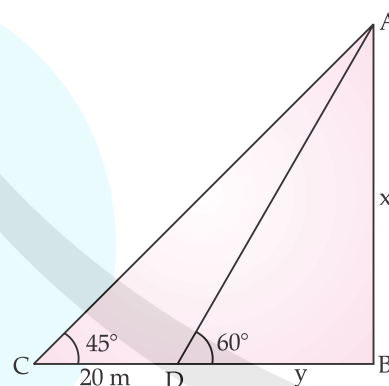
$$= 56 \text{ (from ogive)}$$

Ans.

- (b) Let $AB = x$ be the height of the tower and $CD = 20$ m be the distance he walked towards the tower

Let

$$BD = y$$



In $\triangle ABD$,

$$\tan 60^\circ = \frac{x}{y}$$

$$\Rightarrow \sqrt{3} = \frac{x}{y}$$

$$\Rightarrow y = \frac{x}{\sqrt{3}}$$

...(i)

In $\triangle ABC$,

$$\tan 45^\circ = \frac{x}{y + 20}$$

$$\Rightarrow 1 = \frac{x}{y + 20}$$

$$\Rightarrow x = y + 20$$

...(ii)

From equations (i) and (ii), we get

$$x = \frac{x}{\sqrt{3}} + 20$$

$$\Rightarrow \sqrt{3}x = x + 20\sqrt{3}$$

$$\Rightarrow \sqrt{3}x - x = 20\sqrt{3}$$

$$\Rightarrow (\sqrt{3} - 1)x = 20\sqrt{3}$$

$$\Rightarrow x = \frac{20\sqrt{3}}{\sqrt{3} - 1}$$

$$\Rightarrow x = \frac{20\sqrt{3}(\sqrt{3} + 1)}{(\sqrt{3} - 1)(\sqrt{3} + 1)}$$

$$\Rightarrow x = \frac{20\sqrt{3}(\sqrt{3} + 1)}{(\sqrt{3})^2 - (1)^2}$$

$$\begin{aligned}
 &= \frac{20\sqrt{3}(\sqrt{3}+1)}{3-1} \\
 &= \frac{20\sqrt{3}(\sqrt{3}+1)}{2} \\
 &= 10\sqrt{3}(\sqrt{3}+1) \\
 &= 10\sqrt{3} \times \sqrt{3} + 10\sqrt{3} \\
 &= 30 + 10 \times 1.732 \\
 &= 30 + 17.32 \\
 &= 47.32 \text{ m}
 \end{aligned}$$

(Correct to 2 significant figures)

∴ Height of tower is 47.32 m.

Ans.

Solution 11.

(a) Let $f(x) = x^3 + (kx + 8)x + k$
when $f(x)$ is divided by $(x + 1)$ then by remainder theorem

$$\begin{aligned}
 \text{Remainder, } f(-1) &= (-1)^3 + \{k(-1) + 8\}(-1) + k \\
 &= -1 + (-k + 8)(-1) + k \\
 &= -1 + k - 8 + k \\
 &= 2k - 9
 \end{aligned}$$

when $f(x)$ is divided by $(x - 2)$,

$$\begin{aligned}
 \text{Remainder, } f(2) &= (2)^3 + (k \cdot 2 + 8)2 + k \\
 &= 8 + 4k + 16 + k \\
 &= 5k + 24
 \end{aligned}$$

Also, sum of remainders = 1

$$\begin{aligned}
 f(-1) + f(2) &= 1 \\
 \Rightarrow 2k - 9 + 5k + 24 &= 1 \\
 \Rightarrow 7k + 15 &= 1 \\
 \Rightarrow 7k &= 1 - 15 \\
 \Rightarrow k &= \frac{-14}{7} = -2
 \end{aligned}$$

Ans.

(b) Let the two consecutive natural numbers which are multiples of 3 be x and $x + 3$.

According to the question,

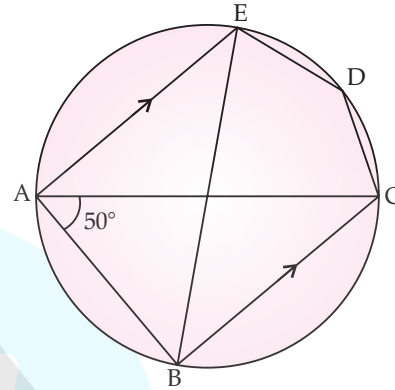
$$\begin{aligned}
 x(x + 3) &= 810 \\
 \Rightarrow x^2 + 3x &= 810 \\
 \Rightarrow x^2 + 3x - 810 &= 0 \\
 \Rightarrow x^2 + 30x - 27x - 810 &= 0 \\
 \Rightarrow x(x + 30) - 27(x + 30) &= 0 \\
 \Rightarrow (x + 30)(x - 27) &= 0 \\
 \Rightarrow x + 30 = 0 \text{ or } x - 27 &= 0 \\
 \Rightarrow x = -30 \text{ or } x = 27
 \end{aligned}$$

$$\begin{aligned}
 \therefore x &= 27 \\
 (\because -30 \text{ is not a natural number})
 \end{aligned}$$

$$\therefore x + 3 = 27 + 3 = 30$$

Hence, the two numbers are 27 and 30. **Ans.**

(c) Given, AC is diameter, $BC \parallel AE$, and $\angle BAC = 50^\circ$



$$\begin{aligned}
 (i) \quad \angle ABC &= 90^\circ \\
 (\because \text{Angle at circumference of a semicircle})
 \end{aligned}$$

In $\triangle ABC$,

$$\begin{aligned}
 \therefore \angle ACB + \angle BAC + \angle ABC &= 180^\circ \\
 (\text{Angles sum property})
 \end{aligned}$$

$$\begin{aligned}
 \Rightarrow \angle ACB + 50^\circ + 90^\circ &= 180^\circ \\
 \Rightarrow \angle ACB &= 180^\circ - 140^\circ
 \end{aligned}$$

$$\angle ACB = 40^\circ \quad \text{Ans.}$$

$$\begin{aligned}
 (ii) \quad \angle CAE &= \angle ACB \\
 (\text{Alternate angles as } BC \parallel AE)
 \end{aligned}$$

$$= 40^\circ$$

$$\begin{aligned}
 \therefore \angle EDC + \angle CAE &= 180^\circ \\
 (\text{Sum of opposite angles of a cyclic quadrilateral is } 180^\circ)
 \end{aligned}$$

$$\Rightarrow \angle EDC + 40^\circ = 180^\circ$$

$$\Rightarrow \angle EDC = 180^\circ - 40^\circ$$

$$\angle EDC = 140^\circ \quad \text{Ans.}$$

$$\begin{aligned}
 (iii) \quad \angle BEC &= \angle BAC \\
 (\text{Angles on same segment are equal})
 \end{aligned}$$

$$= 50^\circ$$

Ans.

Now,

$$\angle BAE = \angle BAC + \angle CAE$$

$$= 50^\circ + 40^\circ$$

$$= 90^\circ$$

We know that, if an angle of a triangle in a circle is 90° . Then, the hypotenuse must be the diameter of the circle.

Hence, BE is a diameter $(\because \angle BAE = 90^\circ)$

Hence Proved.

QUESTIONS

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

- (a) Find the value of 'x' and 'y' if:

$$2 \begin{bmatrix} x & 7 \\ 9 & y-5 \end{bmatrix} + \begin{bmatrix} 6 & -7 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

- (b) Sonia had recurring deposit account in a bank and deposited ₹ 600 per month for $2\frac{1}{2}$ years. If the rate of interest was 10% p.a., find the maturity value of this account. [3]
- (c) Cards bearing numbers 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card which is: [4]

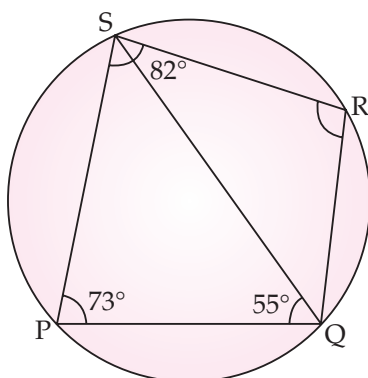
- (i) a prime number.
(ii) a number divisible by 4.
(iii) a number that is a multiple of 6.
(iv) an odd number.

Question 2.

- (a) The circumference of the base of a cylindrical vessel is 132 cm and its height is 25 cm. Find the [3]
- (i) radius of the cylinder

- (ii) volume of cylinder. (use $\pi = \frac{22}{7}$)

- (b) If $(k - 3)$, $(2k + 1)$ and $(4k + 3)$ are three consecutive terms of an A.P., find the value of k. [3]
- (c) PQRS is a cyclic quadrilateral. Given, $\angle QPS = 73^\circ$, $\angle PQS = 55^\circ$ and $\angle PSR = 82^\circ$, calculate: [4]



- (i) $\angle QRS$

- (ii) $\angle RQS$

- (iii) $\angle PRQ$

[3] Question 3.

- (a) If $(x + 2)$ and $(x + 3)$ are factors of $x^3 + ax + b$, find the values of 'a' and 'b'. [3]
- (b) Prove that $\sqrt{\sec^2 \theta + \operatorname{cosec}^2 \theta} = \tan \theta + \cot \theta$ [3]
- (c) Using a graph paper draw a histogram for the given distribution showing the number of runs scored by 50 batsmen. Estimate the mode of the data: [4]

| Runs scored | 3000–4000 | 4000–5000 | 5000–6000 | 6000–7000 | 7000–8000 | 8000–9000 | 9000–10000 |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| No. of batsmen | 4 | 18 | 9 | 6 | 7 | 2 | 4 |

Question 4.

- (a) Solve the following inequation, write down the solution set and represent it on the real number line: [3]
- $$-2 + 10x \leq 13x + 10 < 24 + 10x, x \in \mathbb{Z}$$
- (b) If the straight lines $3x - 5y = 7$ and $4x + ay + 9 = 0$ are perpendicular to one another, find the value of a. [3]
- (c) Solve $x^2 + 7x = 7$ and give your answer correct to two decimal places. [4]

SECTION—B (40 Marks)

(Attempt any **four** questions from this Section)

Question 5.

- (a) The 4th term of a G.P. is 16 and the 7th term is 128. Find the first term and common ratio of the series. [3]
- (b) A man invests ₹ 22,500 in ₹ 50 shares available at 10% discount. If the dividend paid by the company is 12%, calculate: [3]
- (i) The number of shares purchased
- (ii) The annual dividend received
- (iii) The rate of return he gets on his investment. Give your answer correct to the nearest whole number.
- (c) Use graph paper for this question (Take 2 cm = 1 unit along both X and Y axis). ABCD is a quadrilateral whose vertices are A(2, 2), B(2, -2), C(0, -1) and D(0, 1). [4]

(i) Reflect quadrilateral ABCD on the Y-axis and name it as A'B'CD.

(ii) Write down the coordinates of A' and B'.

(iii) Name two points which are invariant under the above reflection.

(iv) Name the polygon A'B'CD.

Question 6.

(a) Using properties of proportion, solve for x. Given that x is positive :

$$\frac{2x + \sqrt{4x^2 - 1}}{2x - \sqrt{4x^2 - 1}} = 4$$

(b) If $A = \begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 4 \\ -1 & 7 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 0 \\ -1 & 4 \end{bmatrix}$, find $AC + B^2 - 10C$. [3]

(c) Prove that $(1 + \cot \theta - \operatorname{cosec} \theta)(1 + \tan \theta + \sec \theta) = 2$ [4]

Question 7.

(a) Find the value of k for which the following equation has equal roots : [3]

$$x^2 + 4kx + (k^2 - k + 2) = 0$$

(b) On a map drawn to a scale of 1 : 50,000, a rectangular plot of land ABCD has the following dimensions. AB = 6 cm; BC = 8 cm and all angles are right angles. Find: [3]

(i) the actual length of the diagonal distance AC of the plot in km.

(ii) the actual area of the plot in sq. km.

(c) A(2, 5), B(-1, 2) and C(5, 8) are the vertices of a triangle ABC, 'M' is a point on AB such that AM : MB = 1 : 2. Find the coordinates of 'M'. Hence, find the equation of the line passing through the points C and M. [4]

Question 8.

(a) ₹ 7500 were divided equally among a certain number of children. Had there been 20 less children, each would have received ₹ 100 more. Find the original number of children. [3]

(b) If the mean of the following distribution is 24, find the value of 'a'. [3]

| Marks | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 |
|--------------------|--------|---------|---------|---------|---------|
| Number of students | 7 | a | 8 | 10 | 5 |

(c) Using ruler and compass only, construct a ΔABC such that BC = 5 cm and AB = 6.5 cm and $\angle ABC = 120^\circ$. [4]

(i) Construct a circumcircle of ΔABC

(ii) Construct a cyclic quadrilateral ABCD, such that D is equidistant from AB and BC.

Question 9.

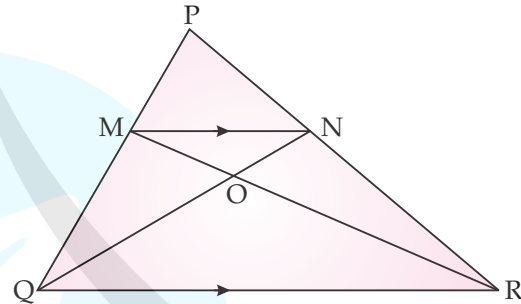
(a) Priyanka has a recurring deposit account of ₹ 1000 per month at 10% per annum. If she gets ₹ 5550 as interest at the time of maturity, find the total time for which the account was held. [3]

(b) In ΔPQR , MN is parallel to QR and $\frac{PM}{MQ} = \frac{2}{3}$ [3]

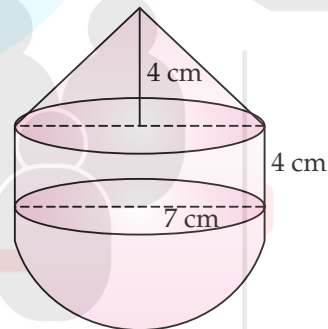
(i) Find $\frac{MN}{QR}$

(ii) Prove that ΔOMN and ΔORQ are similar.

(iii) Find, Area of ΔOMN : Area of ΔORQ .



(c) The following figure represents a solid consisting of right circular cylinder with a hemisphere at one end and a cone at the other. Their common radius is 7 cm. The height of the cylinder and cone are each of 4 cm. Find the volume of the solid. [4]

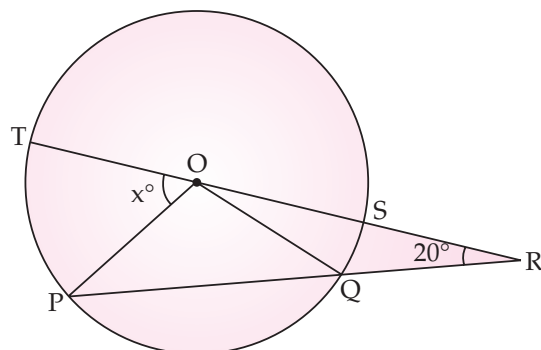


Question 10.

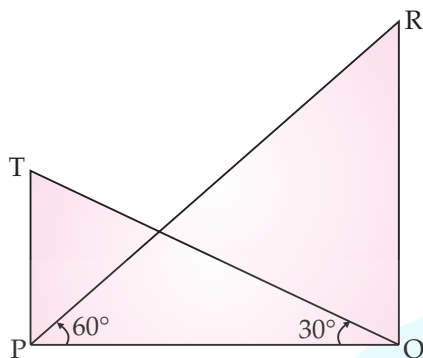
(a) Use remainder theorem to factorize the following polynomial : [3]

$$2x^3 + 3x^2 - 9x - 10.$$

(b) In the figure given below 'O' is the centre of the circle. If QR = OP and $\angle ORP = 20^\circ$. Find the value of 'x' giving reasons. [3]



- (c) The angle of elevation from a point P of the top of a tower QR, 50 m high is 60° and that of the tower PT from a point Q is 30° . Find the height of the tower PT, correct to the nearest metre. [4]



Question 11.

- (a) The 4th term of an A.P. is 22 and 15th term is 66. Find the first term and the common difference. Hence, find the sum of the series to 8 terms. [4]

- (b) Use Graph paper for this question. [6]

A survey regarding height (in cm) of 60 boys belonging to Class 10 of a school was conducted. The following data was recorded :

| Height in cm | 135–140 | 140–145 | 145–150 | 150–155 | 155–160 | 160–165 | 165–170 |
|--------------|---------|---------|---------|---------|---------|---------|---------|
| No. of boys | 4 | 8 | 20 | 14 | 7 | 6 | 1 |

Taking 2 cm = height of 10 cm along one axis and 2 cm = 10 boys along the other axis draw an ogive of the above distribution. Use the graph to estimate the following :

- the median
- lower quartile
- if above 158 cm is considered as the tall boys of the class. Find the number of boys in the class who are tall.

ANSWERS

SECTION—A

Solution 1.

- (a) We have,

$$2 \begin{bmatrix} x & 7 \\ 9 & y-5 \end{bmatrix} + \begin{bmatrix} 6 & -7 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 2x & 14 \\ 18 & 2y-10 \end{bmatrix} + \begin{bmatrix} 6 & -7 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 2x+6 & 7 \\ 22 & 2y-5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

On comparing both sides, we get

$$\Rightarrow 2x + 6 = 10, \quad 2y - 5 = 15$$

$$\Rightarrow 2x = 10 - 6, \quad 2y = 15 + 5$$

$$\Rightarrow 2x = 4, \quad 2y = 20$$

$$\Rightarrow x = \frac{4}{2}, \quad y = \frac{20}{2}$$

$$\therefore x = 2, y = 10.$$

Ans.

- (b) Here, $P = ₹ 600$, $n = 2\frac{1}{2}$ years = 30 months, $r = 10\%$

$$\begin{aligned} \therefore \text{Interest, } I &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\ &= 600 \times \frac{30 \times 31}{2 \times 12} \times \frac{10}{100} \\ &= ₹ 2325 \end{aligned}$$

\therefore Maturity value,

$$\begin{aligned} \text{M.V.} &= Pn + I \\ &= 600 \times 30 + 2325 \\ &= ₹ 20325. \end{aligned}$$

Ans.

- (c) Here, Sample Space,

$$S = \{2, 4, 6, 8, 10, 12, 14, 16, 18, 20\}$$

$$\therefore n(S) = 10$$

- (i) Let A be the event of getting a prime number.

$$A = \{2\}$$

$$\therefore n(A) = 1$$

$$\therefore P(A) = \frac{n(A)}{n(S)} = \frac{1}{10}$$

Ans.

- (ii) Let B be the event of getting a number divisible by 4.

$$\therefore B = \{4, 8, 12, 16, 20\}$$

$$\therefore n(B) = 5$$

$$\therefore P(B) = \frac{n(B)}{n(S)} = \frac{5}{10} = \frac{1}{2}$$

Ans.

- (iii) Let C be the event of getting a number which is multiple of 6.

$$\therefore C = \{6, 12, 18\}$$

$$\therefore n(C) = 3$$

$$\therefore P(C) = \frac{n(C)}{n(S)} = \frac{3}{10}$$

Ans.

- (iv) Let D be the event of getting an odd number.

$$\therefore D = \{ \}$$

$$\therefore n(D) = 0$$

$$\therefore P(D) = \frac{n(D)}{n(S)} = \frac{0}{10} = 0$$

Ans.

Solution 2.

- (a) Given, circumference of base of cylinder = 132 cm, height of cylinder, $h = 25$ cm.

(i) Let r be the radius of cylinder

$$\therefore 2\pi r = 132$$

$$\Rightarrow 2 \times \frac{22}{7} \times r = 132$$

$$\Rightarrow r = \frac{132 \times 7}{2 \times 22} = 21 \text{ cm}$$

(ii) Volume of the cylinder

$$= \pi r^2 h$$

$$= \frac{22}{7} \times (21)^2 \times 25$$

$$= 34650 \text{ cm}^3.$$

Ans. Solution 3.

(a) Let

$$f(x) = x^3 + ax + b$$

$\because (x+2)$ and $(x+3)$ are factors of $f(x)$

$$\therefore f(-2) = 0$$

$$\Rightarrow (-2)^3 + a(-2) + b = 0$$

$$\Rightarrow -8 - 2a + b = 0$$

$$\Rightarrow -2a + b = 8 \quad \dots(i)$$

Also, $f(-3) = 0$

$$\Rightarrow (-3)^3 + a(-3) + b = 0$$

$$\Rightarrow -27 - 3a + b = 0$$

$$\Rightarrow -3a + b = 27 \quad \dots(ii)$$

Subtracting equation (ii) from equation (i), we have

$$-2a + b = 8$$

$$-3a + b = 27$$

$$\begin{array}{r} + \quad - \quad - \\ \hline a = -19 \end{array}$$

Putting the value of a in equation (i)

$$-2 \times (-19) + b = 8$$

$$\Rightarrow b = 8 - 38 = -30$$

$$\therefore a = -19, b = -30.$$

Ans.

(b) To prove,

$$\sqrt{\sec^2 \theta + \operatorname{cosec}^2 \theta} = \tan \theta + \cot \theta$$

$$\therefore \text{L.H.S.} = \sqrt{\sec^2 \theta + \operatorname{cosec}^2 \theta}$$

$$= \sqrt{1 + \tan^2 \theta + 1 + \cot^2 \theta}$$

$$[\because 1 + \tan^2 \theta = \sec^2 \theta, 1 + \cot^2 \theta = \operatorname{cosec}^2 \theta]$$

$$= \sqrt{\tan^2 \theta + \cot^2 \theta + 2}$$

$$= \sqrt{\tan^2 \theta + \cot^2 \theta + 2 \tan \theta \cdot \cot \theta}$$

$$[\because \tan \theta \cdot \cot \theta = 1]$$

$$= \sqrt{(\tan \theta + \cot \theta)^2}$$

$$[\because (a+b)^2 = a^2 + b^2 + 2ab]$$

$$= \tan \theta + \cot \theta$$

$$= \text{R.H.S.}$$

Hence Proved.

(b) Given, $(k-3)$, $(2k+1)$, $(4k+3)$ are 3 consecutive terms of an A.P.

As the difference between the consecutive terms in A.P. are same, i.e., $a_2 - a_1 = a_3 - a_2 = a_4 - a_3 = d$.

$$\therefore (2k+1) - (k-3) = (4k+3) - (2k+1)$$

$$\Rightarrow 2k+1-k+3 = 4k+3-2k-1$$

$$\Rightarrow k+4 = 2k+2$$

$$\Rightarrow k-2k = 2-4$$

$$\Rightarrow -k = -2$$

$$\Rightarrow k = 2$$

Ans.

(c) Given, $\angle QPS = 73^\circ$, $\angle PQS = 55^\circ$, $\angle PSR = 82^\circ$

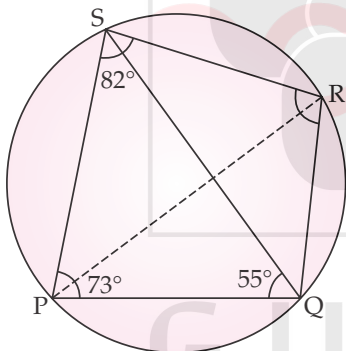
$$(i) \angle QRS + \angle QPS = 180^\circ$$

(opposite angles of a cyclic quadrilateral are supplementary)

$$\Rightarrow \angle QRS + 73^\circ = 180^\circ$$

$$\Rightarrow \angle QRS = 180^\circ - 73^\circ = 107^\circ.$$

Ans.



$$(ii) \angle PQR + \angle PSR = 180^\circ$$

(opposite angles of a cyclic quadrilateral are supplementary)

$$\Rightarrow \angle PQR + 82^\circ = 180^\circ$$

$$\Rightarrow \angle PQR = 180^\circ - 82^\circ$$

$$\Rightarrow \angle PQR = 98^\circ$$

$$\Rightarrow \angle RQS + \angle PQS = 98^\circ$$

$$\Rightarrow \angle RQS + 55^\circ = 98^\circ$$

$$\Rightarrow \angle RQS = 98^\circ - 55^\circ = 43^\circ.$$

Ans.

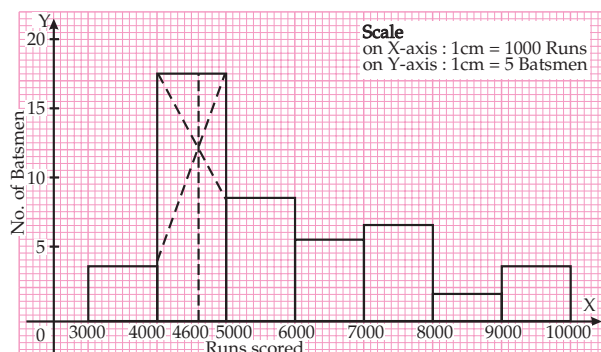
$$(iii) \angle PSQ + \angle QPS + \angle PQS = 180^\circ$$

(sum of angles of a triangle is 180°)

$$\Rightarrow \angle PSQ + 73^\circ + 55^\circ = 180^\circ$$

(c)

| Runs Scored | No. of batsmen |
|--------------|----------------|
| 3000 – 4000 | 4 |
| 4000 – 5000 | 18 |
| 5000 – 6000 | 9 |
| 6000 – 7000 | 6 |
| 7000 – 8000 | 7 |
| 8000 – 9000 | 2 |
| 9000 – 10000 | 4 |



\therefore Mode = 4600

Ans.

Solution 4.

(a) Given inequation is,

$$-2 + 10x \leq 13x + 10 < 24 + 10x, x \in \mathbb{Z}$$

$$\Rightarrow -2 + 10x \leq 13x + 10;$$

$$\Rightarrow 10x - 13x \leq 10 + 2;$$

$$\Rightarrow -3x \leq 12;$$

$$\Rightarrow -x \leq 4;$$

$$\Rightarrow x \geq -4;$$

and $13x + 10 < 24 + 10x$

$$\Rightarrow 13x - 10x < 24 - 10$$

$$\Rightarrow 3x < 14$$

$$\Rightarrow x < \frac{14}{3}$$

$$\therefore -4 \leq x < 4\frac{2}{3}$$

$$\therefore \text{Solution set} = \{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$$



Ans.

(b) Given equation of lines are $3x - 5y = 7$ and $4x + ay + 9 = 0$

$$\Rightarrow -5y = -3x + 7 \quad \text{and} \quad ay = -4x - 9$$

$$\Rightarrow y = \frac{3}{5}x - \frac{7}{5} \quad \text{and} \quad y = -\frac{4}{a}x - \frac{9}{a}$$

Comparing both equations with $y = mx + c$, we get

$$m_1 = \frac{3}{5} \quad m_2 = -\frac{4}{a}$$

The lines are perpendicular to each other,

$$\therefore m_1 \times m_2 = -1$$

$$\Rightarrow \frac{3}{5} \times \left(-\frac{4}{a}\right) = -1$$

$$\Rightarrow -\frac{12}{5} = -a$$

$$\Rightarrow a = \frac{12}{5}$$

$$\Rightarrow a = 2\frac{2}{5}$$

Ans.

(c) We have, $x^2 + 7x = 7$

$$\Rightarrow x^2 + 7x - 7 = 0$$

Comparing it with $ax^2 + bx + c = 0$, we have

$$a = 1, b = 7, c = -7$$

$$\begin{aligned} \therefore x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\ &= \frac{-7 \pm \sqrt{7^2 - 4 \times 1 \times (-7)}}{2 \times 1} \\ &= \frac{-7 \pm \sqrt{49 + 28}}{2} \\ &= \frac{-7 \pm \sqrt{77}}{2} \\ &= \frac{-7 \pm 8.775}{2} \\ &= \frac{-7 + 8.775}{2} \quad \text{or} \quad \frac{-7 - 8.775}{2} \\ &= \frac{1.775}{2} \quad \text{or} \quad \frac{-15.775}{2} \\ &= 0.8875 \quad \text{or} \quad -7.8875 \\ &= 0.89 \quad \text{or} \quad -7.89 \end{aligned}$$

(correct to 2 decimal places)

Ans.

SECTION—B

Solution 5.

(a) Let a be the first term and r be the common ratio of the given G.P.

$$\therefore T_4 = 16 \quad \text{and} \quad T_7 = 128$$

$$\Rightarrow ar^3 = 16 \quad \dots(i)$$

$$\text{and} \quad ar^6 = 128 \quad \dots(ii)$$

Dividing equation (ii) by equation (i), we get

$$\frac{ar^6}{ar^3} = \frac{128}{16}$$

$$\Rightarrow r^3 = 8$$

$$\Rightarrow r = 2$$

$$\therefore \text{From equation (i), } a \times 2^3 = 16$$

$$\Rightarrow a = \frac{16}{8} = 2$$

$$\therefore a = 2, r = 2.$$

Ans.

(b) Given, investment = ₹ 22,500, N.V. = ₹ 50, discount = 10%

$$\therefore \text{M.V.} = ₹ \left(50 - \frac{10}{100} \times 50 \right) = ₹ 45$$

Rate of dividend = 12%

$$(i) \text{ Number of shares} = \frac{\text{Investment}}{\text{M.V.}}$$

$$= \frac{22500}{45} = 500$$

Ans.

(ii) Annual dividend = Dividend per share \times No. of shares

$$= \frac{12}{100} \times 50 \times 500$$

$$= ₹ 3000$$

Ans.

$$(iii) \text{ Rate of return} = \frac{\text{Dividend}}{\text{Investment}} \times 100\%$$

$$= \frac{3000}{22500} \times 100\%$$

$$= 13.3\% = 13\%$$

(correct to the nearest whole number)

Ans.

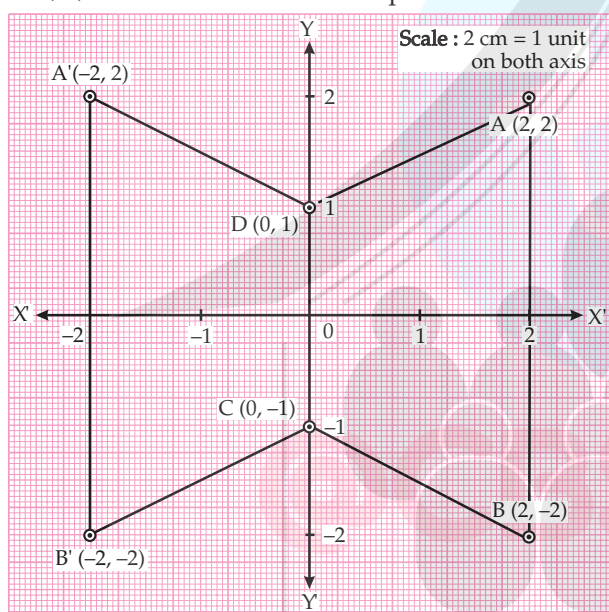
(c) (i) Reflected quadrilateral A'B'CD is shown in graph.

(ii) Coordinates of A' = (-2, 2)

Coordinates of B' = (-2, -2)

(iii) Two invariant points are C(0, -1) and D(0, 1)

(iv) A'B'CD is an isosceles trapezium.



Solution 6.

$$(a) \text{ Given, } \frac{2x + \sqrt{4x^2 - 1}}{2x - \sqrt{4x^2 - 1}} = \frac{4}{1}$$

$$\Rightarrow \frac{2x + \sqrt{4x^2 - 1} + 2x - \sqrt{4x^2 - 1}}{2x + \sqrt{4x^2 - 1} - 2x + \sqrt{4x^2 - 1}} = \frac{4 + 1}{4 - 1}$$

(using componendo and dividendo)

$$\Rightarrow \frac{4x}{2\sqrt{4x^2 - 1}} = \frac{5}{3}$$

$$\Rightarrow 10\sqrt{4x^2 - 1} = 12x$$

$$\Rightarrow 100(4x^2 - 1) = 144x^2$$

(On squaring both sides)

$$\Rightarrow 400x^2 - 100 = 144x^2$$

$$\Rightarrow 400x^2 - 144x^2 = 100$$

$$\Rightarrow 256x^2 = 100$$

$$\Rightarrow x^2 = \frac{100}{256}$$

$$\Rightarrow x^2 = \left(\frac{10}{16}\right)^2$$

$$\Rightarrow x = \pm \frac{10}{16} = \pm \frac{5}{8}$$

$$\therefore x = \frac{5}{8} \quad (\because x \text{ is positive})$$

Ans.

$$(b) \text{ Given, } A = \begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix}, B = \begin{bmatrix} 0 & 4 \\ -1 & 7 \end{bmatrix}, C = \begin{bmatrix} 1 & 0 \\ -1 & 4 \end{bmatrix}$$

$$\therefore AC + B^2 - 10C = \begin{bmatrix} 2 & 3 \\ 5 & 7 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ -1 & 4 \end{bmatrix} + \begin{bmatrix} 0 & 4 \\ -1 & 7 \end{bmatrix} \begin{bmatrix} 0 & 4 \\ -1 & 7 \end{bmatrix} - 10 \begin{bmatrix} 1 & 0 \\ -1 & 4 \end{bmatrix}$$

$$= \begin{bmatrix} 2-3 & 0+12 \\ 5-7 & 0+28 \end{bmatrix} + \begin{bmatrix} 0-4 & 0+28 \\ -1-7 & -4+49 \end{bmatrix} - \begin{bmatrix} 10 & 0 \\ -10 & 40 \end{bmatrix}$$

$$= \begin{bmatrix} -1 & 12 \\ -2 & 28 \end{bmatrix} + \begin{bmatrix} -4 & 28 \\ -7 & 45 \end{bmatrix} - \begin{bmatrix} 10 & 0 \\ -10 & 40 \end{bmatrix}$$

$$= \begin{bmatrix} -5 & 40 \\ -9 & 73 \end{bmatrix} - \begin{bmatrix} 10 & 0 \\ -10 & 40 \end{bmatrix}$$

$$= \begin{bmatrix} -15 & 40 \\ 1 & 33 \end{bmatrix}$$

Ans.

$$(c) \text{ To prove, } (1 + \cot \theta - \operatorname{cosec} \theta)(1 + \tan \theta + \sec \theta) = 2$$

$$\therefore \text{L.H.S.} = (1 + \cot \theta - \operatorname{cosec} \theta)(1 + \tan \theta + \sec \theta)$$

$$= \left(1 + \frac{\cos \theta}{\sin \theta} - \frac{1}{\sin \theta}\right) \left(1 + \frac{\sin \theta}{\cos \theta} + \frac{1}{\cos \theta}\right)$$

$$= \left(\frac{\sin \theta + \cos \theta - 1}{\sin \theta}\right) \left(\frac{\cos \theta + \sin \theta + 1}{\cos \theta}\right)$$

$$= \frac{(\sin \theta + \cos \theta)^2 - (1)^2}{\sin \theta \cos \theta}$$

$$[\because (a+b)(a-b) = a^2 - b^2]$$

$$= \frac{\sin^2 \theta + \cos^2 \theta + 2 \sin \theta \cos \theta - 1}{\sin \theta \cos \theta}$$

$$= \frac{1 + 2 \sin \theta \cos \theta - 1}{\sin \theta \cos \theta}$$

$$[\because \sin^2 \theta + \cos^2 \theta = 1]$$

$$= \frac{2 \sin \theta \cos \theta}{\sin \theta \cos \theta}$$

$$= 2 = \text{R.H.S.}$$

Hence Proved.

Solution 7.

- (a) Given equation is, $x^2 + 4kx + (k^2 - k + 2) = 0$

Comparing it with $ax^2 + bx + c = 0$, we have,

$$a = 1, b = 4k, c = k^2 - k + 2.$$

$$\begin{aligned} \therefore D &= b^2 - 4ac = (4k)^2 - 4 \times 1 \\ &\quad \times (k^2 - k + 2) \\ &= 16k^2 - 4k^2 + 4k - 8 \\ &= 12k^2 + 4k - 8 \end{aligned}$$

\therefore The roots of given equation are equal, so

$$D = 0$$

$$\Rightarrow 12k^2 + 4k - 8 = 0$$

$$\Rightarrow 3k^2 + k - 2 = 0$$

$$\Rightarrow 3k^2 + 3k - 2k - 2 = 0$$

$$\Rightarrow 3k(k+1) - 2(k+1) = 0$$

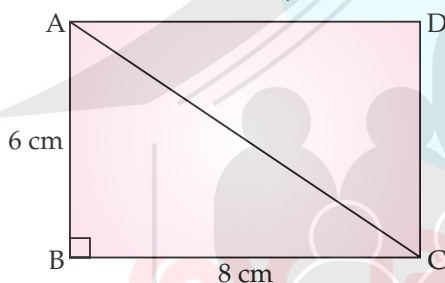
$$\Rightarrow (k+1)(3k-2) = 0$$

$$\Rightarrow k+1 = 0 \text{ or } 3k-2 = 0$$

$$\Rightarrow k = -1 \text{ or } k = \frac{2}{3}$$

\therefore The value of k is -1 or $\frac{2}{3}$.

- (b) Here, $1 : k = 1 : 50,000$
and $AB = 6 \text{ cm}, BC = 8 \text{ cm}$



$$\begin{aligned} \therefore AC &= \sqrt{AB^2 + BC^2} \\ &= \sqrt{6^2 + 8^2} \\ &= \sqrt{36 + 64} \\ &= \sqrt{100} = 10 \text{ cm} \end{aligned}$$

- (i) Actual length of $AC = k \times AC$
 $= 50,000 \times 10 \text{ cm}$
 $= 5,00,000 \text{ cm}$
 $= \frac{500000}{100000} \text{ km} = 5 \text{ km}.$

Ans.

- (ii) Area of rectangle ABCD
 $= 6 \times 8 = 48 \text{ cm}^2$
 \therefore Actual area $= k^2 \times \text{Area of ABCD}$
 $= (50,000)^2 \times 48 \text{ cm}^2$
 $= \frac{50,000 \times 50,000 \times 48}{1,00,000 \times 1,00,000} \text{ km}^2$
 $= 12 \text{ km}^2.$

Ans.

- (c) Given, vertices of triangle are, A (2, 5), B (-1, 2), C (5, 8), $AM : MB = 1 : 2$.
 \therefore M is a point on AB.

$$\begin{array}{c} \xrightarrow{1:2} \\ A \quad \quad \quad B \\ (2, 5) \quad M(a, b) \quad (-1, 2) \end{array}$$

$$\therefore \text{Coordinates of M} = \left(\frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}, \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2} \right)$$

$$\text{Here, } m_1 : m_2 = 1 : 2, x_1 = 2, y_1 = 5, x_2 = -1, y_2 = 2$$

\therefore Coordinates of M

$$\begin{aligned} &= \left(\frac{1 \times (-1) + 2 \times 2}{1 + 2}, \frac{1 \times 2 + 2 \times 5}{1 + 2} \right) \\ &= \left(\frac{-1 + 4}{3}, \frac{12}{3} \right) = (1, 4) \end{aligned}$$

Ans.

The equation of line passing through C (5, 8) and M (1, 4) is

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$

$$\text{Here, } x_1 = 5, y_1 = 8, x_2 = 1, y_2 = 4$$

$$\therefore y - 8 = \frac{4 - 8}{1 - 5} (x - 5)$$

$$\Rightarrow y - 8 = \frac{-4}{-4} (x - 5)$$

$$\Rightarrow y - 8 = x - 5$$

$$\Rightarrow x - y + 3 = 0.$$

Ans.

Solution 8.

- (a) Let the original number of children be x .

Total amount to be distributed = ₹ 7,500

$$\therefore \text{Each will receive} = \frac{7,500}{x}$$

If the number of children are $(x - 20)$

$$\text{Then, each will receive} = \frac{7,500}{x - 20}$$

According to question,

$$\frac{7,500}{x - 20} - \frac{7,500}{x} = 100$$

$$\Rightarrow 7,500 \left(\frac{1}{x - 20} - \frac{1}{x} \right) = 100$$

$$\Rightarrow \frac{x - x + 20}{x(x - 20)} = \frac{100}{7,500}$$

$$\Rightarrow \frac{20}{x^2 - 20x} = \frac{1}{75}$$

$$\Rightarrow x^2 - 20x = 1,500$$

$$\Rightarrow x^2 - 20x - 1,500 = 0$$

$$\Rightarrow x^2 - (50 - 30)x - 1,500 = 0$$

$$\Rightarrow x^2 - 50x + 30x - 1,500 = 0$$

$$\Rightarrow x(x - 50) + 30(x - 50) = 0$$

$$\Rightarrow (x - 50)(x + 30) = 0$$

$$\Rightarrow x - 50 = 0 \text{ or } x + 30 = 0$$

$$\Rightarrow x = 50 \text{ or } x = -30$$

$$\therefore x = 50$$

($\because x$ cannot be negative)

\therefore The original number of children = 50.

Ans.

(b)

| Marks | Mid values (x) | No. of students (f) | fx |
|---------|----------------|---------------------|-------------------------|
| 0 - 10 | 5 | 7 | 35 |
| 10 - 20 | 15 | a | 15a |
| 20 - 30 | 25 | 8 | 200 |
| 30 - 40 | 35 | 10 | 350 |
| 40 - 50 | 45 | 5 | 225 |
| | | $\Sigma f = 30 + a$ | $\Sigma fx = 15a + 810$ |

$$\therefore \text{Mean} = \frac{\Sigma fx}{\Sigma f}$$

$$\Rightarrow 24 = \frac{15a + 810}{a + 30}$$

$$\Rightarrow 24a + 720 = 15a + 810$$

$$\Rightarrow 24a - 15a = 810 - 720$$

$$\Rightarrow 9a = 90$$

$$\Rightarrow a = 10.$$

Ans.

(c) Given, BC = 5 cm, AB = 6.5 cm, $\angle ABC = 120^\circ$

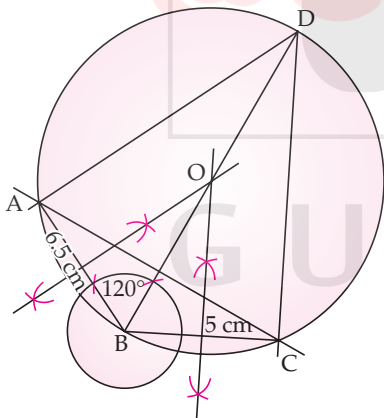
Steps of construction :

(i) Construct $\triangle ABC$ with given data.

(ii) Draw perpendicular bisectors of BC and AB which meet at O.

(iii) Taking O as centre and OB as radius, draw circumcircle of $\triangle ABC$ passing through A, B and C.(iv) Draw angle bisector of $\angle ABC$ as BD which meets circle at D.

(v) Join AD and CD. ABCD is the required cyclic quadrilateral.

**Solution 9.**

(a) Given, P = ₹ 1,000, r = 10%, I = ₹ 5,550, n = ?

$$\therefore I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$\Rightarrow 5550 = 1000 \times \frac{n^2 + n}{24} \times \frac{10}{100}$$

$$\Rightarrow 555 = \frac{5}{12} (n^2 + n)$$

$$\Rightarrow 5n^2 + 5n = 6660$$

$$\Rightarrow 5(n^2 + n) = 6660$$

$$\Rightarrow n^2 + n = 1332$$

$$\Rightarrow n^2 + n - 1332 = 0$$

$$\Rightarrow n^2 + 37n - 36n - 1332 = 0$$

$$\Rightarrow n(n + 37) - 36(n + 37) = 0$$

$$\Rightarrow (n + 37)(n - 36) = 0$$

$$\Rightarrow n + 37 = 0 \text{ or } n - 36 = 0$$

$$\Rightarrow n = -37 \text{ or } n = 36$$

$$\therefore n = 36$$

($\because n$ cannot be negative)

Hence, total time for which amount was held is 36 months or 3 years.

Ans.

(b) Given, MN || QR, and $\frac{PM}{MQ} = \frac{2}{3}$.

$$\text{Now, } \frac{PM}{MQ} = \frac{2}{3}$$

$$\Rightarrow \frac{PM}{PM + MQ} = \frac{2}{2 + 3}$$

$$\Rightarrow \frac{PM}{PQ} = \frac{2}{5}$$

(i) In $\triangle PMN$ and $\triangle PQR$,

$$\angle P = \angle P \quad (\text{common angle})$$

$$\angle PMN = \angle PQR$$

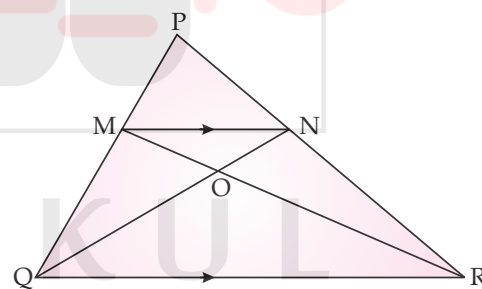
(corresponding angles, MN || QR)

$$\therefore \triangle PMN \sim \triangle PQR \quad (\text{AA axiom})$$

$$\therefore \frac{MN}{QR} = \frac{PM}{PQ} \quad (\text{corresponding sides of similar } \triangle s)$$

$$\frac{MN}{QR} = \frac{2}{5}$$

Ans.

(ii) In $\triangle OMN$ and $\triangle ORQ$,

$$\angle MON = \angle QOR$$

(vertically opposite angles)

$$\angle OMN = \angle ORQ$$

(Alternate angles, MN || QR)

$$\therefore \triangle OMN \sim \triangle ORQ \quad (\text{By AA axiom})$$

Ans.

$$(iii) \frac{\text{Area of } (\triangle OMN)}{\text{Area of } (\triangle ORQ)} = \frac{MN^2}{QR^2}$$

(Area of similar triangles are proportional to the square of their corresponding sides)

$$= \frac{2^2}{5^2} = \frac{4}{25}$$

\Rightarrow Area of $\triangle OMN$: Area of $\triangle ORQ = 4 : 25$.

Ans.

(c) Given, common radius (r) = 7 cm.

Height of cylinder = Height of cone

$$= h = 4 \text{ cm.}$$

\therefore Volume of solid = Volume of cone

+ Volume of cylinder

+ Volume of hemisphere

$$= \frac{1}{3}\pi r^2 h + \pi r^2 h + \frac{2}{3}\pi r^3$$

$$= \pi r^2 \left(\frac{1}{3}h + h + \frac{2}{3}r \right)$$

$$= \frac{22}{7} \times 7^2 \left(\frac{1}{3} \times 4 + 4 + \frac{2}{3} \times 7 \right)$$

$$= 22 \times 7 \left(\frac{4}{3} + 4 + \frac{14}{3} \right)$$

$$= 154 \left(\frac{4 + 12 + 14}{3} \right)$$

$$= 154 \left(\frac{30}{3} \right)$$

$$= 154 \times 10 = 1540 \text{ cm}^3.$$

Ans.

Solution 10.

(a) Let

$$f(x) = 2x^3 + 3x^2 - 9x - 10$$

For $x = 2$,

$$f(2) = 2 \times 2^3 + 3 \times 2^2 - 9 \times 2 - 10$$

$$= 16 + 12 - 18 - 10$$

$$= 28 - 28 = 0.$$

$\therefore (x - 2)$ is a factor of $f(x)$

$$(x - 2) \overline{) 2x^3 + 3x^2 - 9x - 10} \quad (2x^2 + 7x + 5)$$

$$2x^3 - 4x^2$$

$$- \quad +$$

$$7x^2 - 9x$$

$$7x^2 - 14x$$

$$- \quad +$$

$$5x - 10$$

$$5x - 10$$

$$- \quad +$$

$$\times$$

$$\text{Now, } 2x^2 + 7x + 5 = 2x^2 + 5x + 2x + 5$$

$$= x(2x + 5) + 1(2x + 5)$$

$$= (2x + 5)(x + 1)$$

$$\therefore f(x) = (x + 1)(x - 2)(2x + 5) \quad \text{Ans.}$$

(b) Given, $QR = OP$, $\angle ORP = 20^\circ$

But, $OP = OQ$ (radius of circle)

$$\Rightarrow OP = OQ = QR$$

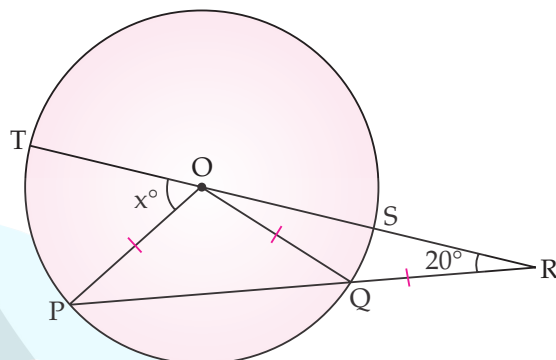
$$\therefore \angle QOS = \angle ORQ \quad (\because QR = OQ) \\ = 20^\circ.$$

$$\therefore \angle OQP = \angle QOR + \angle ORQ$$

(Exterior angle is equal to sum of interior opposite angles)

$$= 20^\circ + 20^\circ = 40^\circ$$

$$\therefore \angle OPQ = \angle OQP \quad (\because OP = OQ) \\ = 40^\circ$$



$$\therefore \angle POQ + \angle OPQ + \angle OQP = 180^\circ$$

(sum of angles in a triangle is 180°)

$$\Rightarrow \angle POQ + 40^\circ + 40^\circ = 180^\circ$$

$$\Rightarrow \angle POQ = 180^\circ - 80^\circ = 100^\circ$$

$$\therefore \angle POT + \angle POQ + \angle QOR = 180^\circ$$

(sum of angles on a straight line is 180°)

$$\Rightarrow x^\circ + 100^\circ + 20^\circ = 180^\circ$$

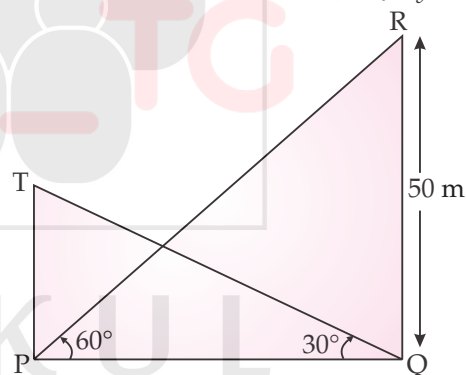
$$\Rightarrow x^\circ = 180^\circ - 120^\circ = 60^\circ.$$

Ans.

(c) Given, $QR = 50 \text{ m}$, $\angle RPQ = 60^\circ$, $\angle PQT = 30^\circ$.

Let

$$PT = x \text{ m, } PQ = y \text{ m}$$



$$\therefore \text{In } \triangle PQR, \quad \tan 60^\circ = \frac{QR}{PQ}$$

$$\Rightarrow \sqrt{3} = \frac{50}{y}$$

$$\Rightarrow y = \frac{50}{\sqrt{3}} \quad \dots(i)$$

$$\text{In } \triangle PQT, \quad \tan 30^\circ = \frac{PT}{PQ}$$

$$\Rightarrow \frac{1}{\sqrt{3}} = \frac{x}{y}$$

$$\Rightarrow x = \frac{y}{\sqrt{3}} \quad \dots(ii)$$

$$= \frac{50}{\sqrt{3}} \quad [\text{using eqn. (i)}]$$

$$= \frac{50}{\sqrt{3} \times \sqrt{3}} = \frac{50}{3}$$

$$= 16.667$$

$$= 17 \text{ m} \quad \text{Ans.}$$

(correct to the nearest metre)

Solution 11.

(a) Let a be the first term and d be the common difference of given A.P.

$$\therefore a_4 = 22 \text{ and } a_{15} = 66 \quad (\text{Given})$$

$$\Rightarrow a + 3d = 22 \quad \dots(i)$$

$$\text{and } a + 14d = 66 \quad \dots(ii)$$

Subtracting equation (i) from equation (ii), we get

$$\begin{array}{r} a + 14d = 66 \\ a + 3d = 22 \\ \hline 11d = 44 \end{array}$$

$$\Rightarrow d = 4$$

From equation (i),

$$a + 3 \times 4 = 22$$

$$\Rightarrow a = 22 - 12 = 10$$

$$\therefore a = 10, d = 4.$$

Sum of series to 8 terms,

$$\begin{aligned} S_8 &= \frac{n}{2} [2a + (n-1)d] \\ &= \frac{8}{2} [2 \times 10 + (8-1)4] \\ &= 4(20 + 28) \\ &= 4 \times 48 = 192 \end{aligned}$$

Ans.**(b)**

| Height in cm | No. of Boys | c.f. |
|--------------|-------------|------|
| 135 – 140 | 4 | 4 |
| 140 – 145 | 8 | 12 |
| 145 – 150 | 20 | 32 |
| 150 – 155 | 14 | 46 |
| 155 – 160 | 7 | 53 |
| 160 – 165 | 6 | 59 |
| 165 – 170 | 1 | 60 |
| | $n = 60$ | |

(i) Median = $\frac{n}{2}$ th observation

$$= \frac{60}{2} \text{th observation}$$

$$= 30\text{th observation}$$

$$= 150 \text{ cm (from ogive) } \quad \text{Ans.}$$

(ii) Lower quartile = $\frac{n}{4}$ th observation

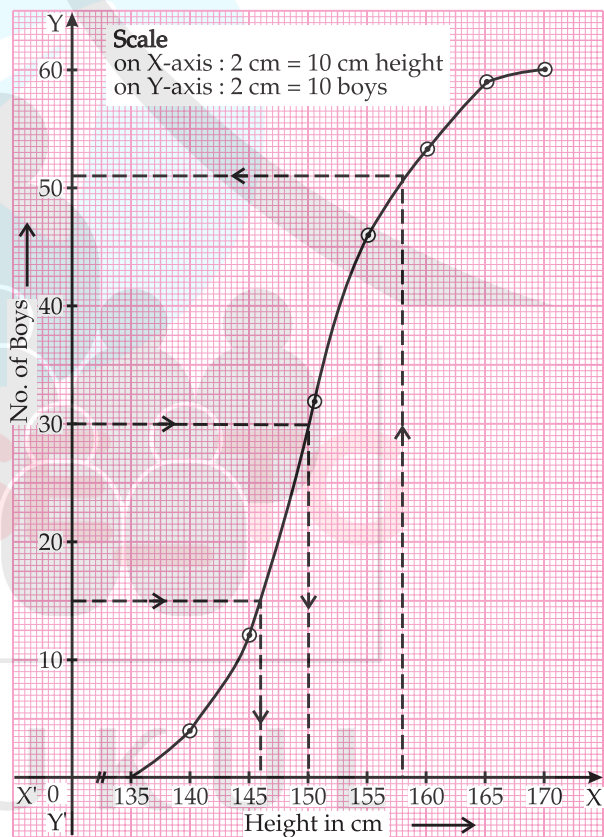
$$= \frac{60}{4} \text{th observation}$$

$$= 15\text{th observation}$$

$$= 146 \text{ cm (from ogive) } \quad \text{Ans.}$$

(iii) No. of boys whose height is less than 158 cm = 51. (from ogive)

$$\therefore \text{No. of tall boys} = 60 - 51 = 9. \quad \text{Ans.}$$



QUESTIONS

SECTION—A (40 Marks)

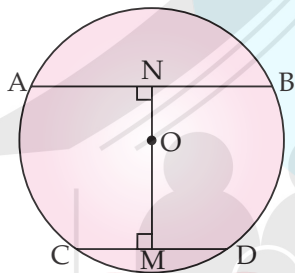
(Attempt all questions from this Section)

Question 1.

- (a) If b is the mean proportion between a and c , show that:

$$\frac{a^4 + a^2b^2 + b^4}{b^4 + b^2c^2 + c^4} = \frac{a^2}{c^2}$$

- (b) Solve the equation $4x^2 - 5x - 3 = 0$ and give your answer correct to two decimal places. [4]
- (c) AB and CD are two parallel chords of a circle such that $AB = 24$ cm and $CD = 10$ cm. If the radius of the circle is 13 cm, find the distance between the two chords. ** [3]



Question 2.

- (a) Evaluate without using trigonometric tables, ** [3]
- $$\sin^2 28^\circ + \sin^2 62^\circ + \tan^2 38^\circ - \cot^2 52^\circ + \frac{1}{4} \sec^2 30^\circ$$
- (b) If $A = \begin{bmatrix} 1 & 3 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 1 \\ -3 & 2 \end{bmatrix}$ and $A^2 - 5B^2 = 5C$. Find matrix C where C is a 2 by 2 matrix. [4]
- (c) Jaya borrowed ₹ 50,000 for 2 years. The rates of interest for two successive years are 12% and 15% respectively. She repays ₹ 33,000 at the end of the first year. Find the amount she must pay at the end of the second year to clear her debt. ** [3]

Question 3.

- (a) The catalogue price of a computer set is ₹ 42000. The shopkeeper gives a discount of 10% on the listed price. He further gives an off-season discount of 5% on the discounted price. However, sales tax at 8% is charged on the remaining price after the two successive discounts. Find : ** [3]
- the amount of sales tax a customer has to pay
 - the total price to be paid by the customer for the computer set.

** Answer is not given due to change in the present syllabus.

- (b) $P(1, -2)$ is a point on the line segment AB with $A(3, -6)$ and $B(x, y)$ such that $AP : PB$ is equal to $2 : 3$. Find the coordinates of B . [4]

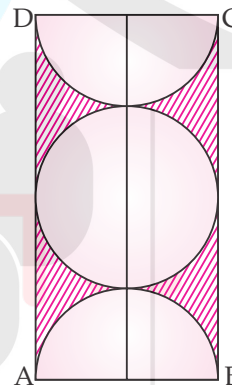
- (c) The marks of 10 students of a class in an examination arranged in ascending order are as follows : [3]

13, 35, 43, 46, x , $x + 4$, 55, 61, 71, 80

If the median marks is 48, find the value of x . Hence find the mode of the given data.

Question 4.

- (a) What must be subtracted from $16x^3 - 8x^2 + 4x + 7$ so that the resulting expression has $2x + 1$ as a factor ? [3]
- (b) In the given figure $ABCD$ is a rectangle. It consists of a circle and two semi-circles each of which are of radius 5 cm. Find the area of the shaded region. Give your answer correct to three significant figures. ** [4]



- (c) Solve the following inequation and represent the solution set on a number line. [3]

$$-8\frac{1}{2} < -\frac{1}{2} - 4x \leq 7\frac{1}{2}, x \in \mathbb{I}$$

SECTION—B (40 Marks)

(Attempt any four questions from this Section)

Question 5.

- (a) Given matrix $B = \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix}$. Find the matrix X if, $X = B^2 - 4B$. [4]

Hence, solve for a and b , given $X \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 5 \\ 50 \end{bmatrix}$

- (b) How much should a man invest in ₹ 50 shares selling at ₹ 60 to obtain an income of ₹ 450, if the rate of dividend declared is 10%. Also find his yield percent, to the nearest whole number. [3]

- (c) Sixteen cards are labelled as a, b, c, m, n, o, p. They are put in a box and shuffled. A boy is asked to draw a card from the box. What is the probability that the card drawn is :

- (i) a vowel.
(ii) a consonant.
(iii) none of the letters of the word 'median'.

Question 6.

- (a) Using a ruler and a compass, construct a triangle ABC in which $AB = 7\text{cm}$, $\angle CAB = 60^\circ$ and $AC = 5\text{cm}$. Construct the locus of :

- (i) points equidistant from AB and AC.
(ii) points equidistant from BA and BC.

Hence, construct a circle touching the three sides of the triangle internally.

- (b) A conical tent has to accommodate 77 persons. Each person must have 16 m^3 of air to breathe. Given the radius of the tent as 7m, find the height of the tent and also its curved surface area.

- (c) If $\frac{7m+2n}{7m-2n} = \frac{5}{3}$ use properties of proportion to find

- (i) $m : n$
(ii) $\frac{m^2 + n^2}{m^2 - n^2}$

Question 7.

- (a) A page from a savings bank account passbook is given below :

| Data | Particulars | Amount With-drawn (₹) | Amount Deposited (₹) | Balance (₹) |
|---------------|-------------|-----------------------|----------------------|-------------|
| Jan. 7, 2016 | B/F | | | 3000.00 |
| Jan. 10, 2016 | By Cheque | | 2600.00 | 5600.00 |
| Feb. 8, 2016 | To Self | 1500.00 | | 4100.00 |
| Apr. 6, 2016 | By Cheque | 2100.00 | | 2000.00 |
| May 4, 2016 | By Cash | | 6500.00 | 8500.00 |
| May 27, 2016 | By Cheque | | 1500.00 | 10000.00 |

- (i) Calculate the interest for the 6 months from January to June 2016, at 6% per annum.

- (ii) If the account is closed on 1st July 2016, find the amount received by the account holder.

- (b) Use a graph paper for this question (Take 2 cm = 1 unit on both X and Y axis)

- (i) Plot the following points :

$A(0, 4)$, $B(2, 3)$, $C(1, 1)$ and $D(2, 0)$

- (ii) Reflect points B, C, D on the Y-axis and write down their coordinates. Name the images as B' , C' , D' respectively.

** Answer is not given due to change in the present syllabus.

- (iii) Join the points A, B, C, D, D' , C' , B' and A in order, so as form a closed figure.

Write down equation of the line of symmetry of the figure formed.**

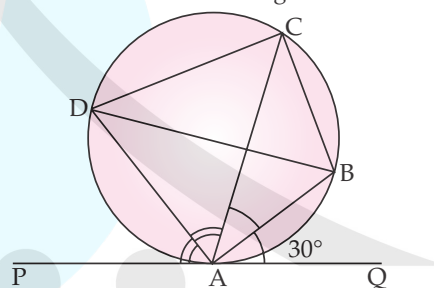
Question 8.

- (a) Calculate the mean of the following distribution using step deviation method.

| Marks | 0 – 10 | 10 – 20 | 20 – 30 | 30 – 40 | 40 – 50 | 50 – 60 |
|--------------------|--------|---------|---------|---------|---------|---------|
| Number of Students | 10 | 9 | 25 | 30 | 16 | 10 |

- (b) In the given figure PQ is a tangent to the circle at A. AB and AD are bisectors of $\angle CAQ$ and $\angle PAC$. If $\angle BAQ = 30^\circ$, prove that :

- (i) BD is a diameter of the circle.
(ii) $\triangle ABC$ is an isosceles triangle.



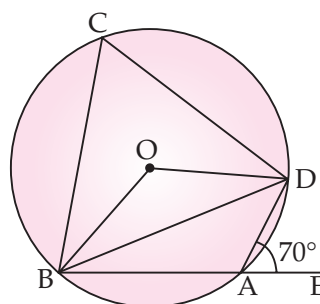
- (c) The printed price of an air conditioner is ₹ 45,000. The wholesaler allows a discount of 10% to the shopkeeper. The shopkeeper sells the article to the customer at a discount of 5% of the marked price. Sales tax (under VAT) is charged at the rate of 12% at every stage. Find :

- (i) VAT paid by the shopkeeper to the government.
(ii) The total amount paid by the customer inclusive of tax.

Question 9.

- (a) In the figure given, O is the centre of the circle. $\angle DAE = 70^\circ$. Find, giving suitable reasons, the measure of :

- (i) $\angle BCD$ (ii) $\angle BOD$ (iii) $\angle OBD$



- (b) $A(-1, 3)$, $B(4, 2)$ and $C(3, -2)$ are the vertices of a triangle.

(i) Find the coordinates of the centroid G of the triangle.

(ii) Find the equation of the line through G and parallel to AC.

(c) Prove that

$$\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta} = \tan \theta$$

Question 10.

(a) The sum of the ages of Vivek and his younger brother Amit is 47 years. The product of their ages in years is 550. Find their ages. [4]

(b) The daily wages of 80 workers in a project are given below. [6]

| Wages (in ₹) | 400–450 | 450–500 | 500–550 | 550–600 | 600–650 | 650–700 | 700–750 |
|----------------|---------|---------|---------|---------|---------|---------|---------|
| No. of workers | 2 | 6 | 12 | 18 | 24 | 13 | 5 |

Use a graph paper to draw an ogive for the above distribution. (Use a scale of 2 cm = ₹ 50 on X-axis and 2 cm = 10 workers on Y-axis). Use your ogive to estimate :

(i) the median wage of the workers.

(ii) the lower quartile wage of workers.

(iii) the number of workers who earn more than ₹ 625 daily. [6]

Question 11.

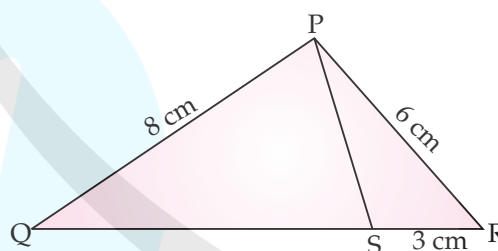
(a) The angles of depression of two ships A and B as observed from the top of a light house 60 m high are 60° and 45° respectively. If the two ships are on the opposite sides of the light house, find the distance between the two ships. Give your answer correct to the nearest whole number. [4]

(b) PQR is a triangle. S is a point on the side QR of ΔPQR such that $\angle PSR = \angle QPR$. Given $QP = 8$ cm, $PR = 6$ cm and $SR = 3$ cm [3]

(i) Prove $\Delta PQR \sim \Delta SPR$

(ii) Find the length of QR and PS

(iii) $\frac{\text{Area of } \Delta PQR}{\text{Area of } \Delta SPR}$



(c) Mr. Richard has a recurring deposit account in a bank for 3 years at 7.5% p.a. simple interest. If he gets ₹ 8325 as interest at the time of maturity, find : [3]

(i) The monthly deposit

(ii) The maturity value.

ANSWERS

SECTION—A

Solution 1.

(a) Given, b is mean proportion between a and c.

$$\therefore \frac{a}{b} = \frac{b}{c} = k \text{ (say)}$$

$$\Rightarrow b = kc; a = kb = k(kc) = k^2c$$

$$\begin{aligned} \therefore \text{L.H.S.} &= \frac{a^4 + a^2b^2 + b^4}{b^4 + b^2c^2 + c^4} \\ &= \frac{(k^2c)^4 + (k^2c)^2 \cdot (kc)^2 + (kc)^4}{(kc)^4 + (kc)^2c^2 + c^4} \\ &= \frac{k^8c^4 + k^6c^4 + k^4c^4}{k^4c^4 + k^2c^4 + c^4} \\ &= \frac{k^4c^4(k^4 + k^2 + 1)}{c^4(k^4 + k^2 + 1)} = k^4 \end{aligned}$$

$$\text{and R.H.S.} = \frac{a^2}{c^2} = \frac{(k^2c)^2}{c^2} = \frac{k^4c^2}{c^2} = k^4$$

$$\therefore \text{L.H.S.} = \text{R.H.S.}$$

Hence Proved.

(b) Given equation is, $4x^2 - 5x - 3 = 0$.

Comparing it with $ax^2 + bx + c = 0$, we have

$$a = 4, b = -5, c = -3$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \times 4 \times (-3)}}{2 \times 4}$$

$$= \frac{5 \pm \sqrt{25 + 48}}{8} = \frac{5 \pm \sqrt{73}}{8}$$

$$= \frac{5 \pm 8.544}{8}$$

$$= \frac{5 + 8.544}{8} \text{ or } \frac{5 - 8.544}{8}$$

$$= \frac{13.544}{8} \text{ or } \frac{-3.544}{8}$$

$$= 1.693 \text{ or } -0.443$$

$$= 1.69 \text{ or } -0.44$$

(correct to 2 decimal places) Ans.

Solution 2.

$$(b) \text{ Given, } A = \begin{bmatrix} 1 & 3 \\ 3 & 4 \end{bmatrix}, B = \begin{bmatrix} -2 & 1 \\ -3 & 2 \end{bmatrix}$$

$$\text{We have, } A^2 - 5B^2 = 5C$$

$$\Rightarrow \begin{bmatrix} 1 & 3 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 1 & 3 \\ 3 & 4 \end{bmatrix} - 5 \begin{bmatrix} -2 & 1 \\ -3 & 2 \end{bmatrix} \begin{bmatrix} -2 & 1 \\ -3 & 2 \end{bmatrix} = 5C$$

$$\Rightarrow 5C = \begin{bmatrix} 1+9 & 3+12 \\ 3+12 & 9+16 \end{bmatrix} - 5 \begin{bmatrix} 4-3 & -2+2 \\ 6-6 & -3+4 \end{bmatrix}$$

$$\Rightarrow 5C = \begin{bmatrix} 10 & 15 \\ 15 & 25 \end{bmatrix} - 5 \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$\Rightarrow 5C = \begin{bmatrix} 10 & 15 \\ 15 & 25 \end{bmatrix} - \begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix}$$

$$\Rightarrow 5C = \begin{bmatrix} 5 & 15 \\ 15 & 20 \end{bmatrix}$$

$$\Rightarrow C = \frac{1}{5} \begin{bmatrix} 5 & 15 \\ 15 & 20 \end{bmatrix}$$

$$\Rightarrow C = \begin{bmatrix} 1 & 3 \\ 3 & 4 \end{bmatrix}$$

Solution 3.

- (b) Given Co-ordinates are P (1, -2), A (3, -6), B (x, y), and AP : PB = 2 : 3

By section formula,

$$x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2},$$

$$y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2},$$

$$\Rightarrow 1 = \frac{2 \times x + 3 \times 3}{2+3}, \quad -2 = \frac{2 \times y + 3 \times (-6)}{2+3}$$

$$\Rightarrow 5 = 2x + 9, \quad -10 = 2y - 18$$

$$\Rightarrow 2x = 5 - 9, \quad 2y = -10 + 18$$

$$\Rightarrow x = \frac{-4}{2}, \quad y = \frac{8}{2}$$

$$\Rightarrow x = -2, y = 4$$

The coordinates of B are (-2, 4)

Ans.

- (c) Given marks are 13, 35, 43, 46, x, x + 4, 55, 61, 71, 80.

Median = 48

$\therefore n = 10$ (even)

\therefore Median = $\frac{1}{2} \left(\left(\frac{n}{2} \right)^{\text{th}} \text{ observation} \right.$

$$\left. + \left(\frac{n}{2} + 1 \right)^{\text{th}} \text{ observation} \right)$$

$$= \frac{5^{\text{th}} \text{ observation} + 6^{\text{th}} \text{ observation}}{2}$$

$$= \frac{x + x + 4}{2}$$

$$\therefore 48 = \frac{2x + 4}{2}$$

$$\Rightarrow 48 = \frac{2(x + 2)}{2}$$

$$\Rightarrow x + 2 = 48$$

$$\Rightarrow x = 48 - 2 = 46$$

$$\therefore x + 4 = 46 + 4 = 50$$

\therefore The marks are : 13, 35, 43, 46, 46, 50, 55, 61, 71, 80.

Since 46 has highest frequency

$$\therefore \text{Mode} = 46$$

Ans.**Solution 4.**

- (a) Let the required number be K.

$$\text{Let } f(x) = 16x^3 - 8x^2 + 4x + 7 - K$$

$\therefore (2x + 1)$ is a factor of $f(x)$

$$\therefore f\left(-\frac{1}{2}\right) = 0$$

$$\Rightarrow 16 \times \left(-\frac{1}{2}\right)^3 - 8 \times \left(-\frac{1}{2}\right)^2 + 4 \times \left(-\frac{1}{2}\right) + 7 - K = 0$$

$$\Rightarrow -16 \times \frac{1}{8} - 8 \times \frac{1}{4} - 4 \times \frac{1}{2} + 7 - K = 0$$

$$\Rightarrow -2 - 2 - 2 + 7 - K = 0$$

$$\Rightarrow -6 + 7 - K = 0$$

$$\Rightarrow 1 - K = 0$$

$$\Rightarrow K = 1$$

\therefore The required number to be subtracted is 1.

Ans.

- (c) Given inequation is,

$$-8\frac{1}{2} < -\frac{1}{2} - 4x \leq 7\frac{1}{2}, x \in I$$

$$\Rightarrow -\frac{17}{2} < \frac{-1 - 8x}{2} \leq \frac{15}{2}$$

$$\Rightarrow -\frac{17}{2} \times 2 < \frac{-1 - 8x}{2} \times 2 \leq \frac{15}{2} \times 2$$

[Multiplying with 2 in complete inequation]

$$\Rightarrow -17 < -1 - 8x \leq 15$$

$$\Rightarrow -17 + 1 < -1 + 1 - 8x \leq 15 + 1$$

[Adding 1 in complete inequation]

$$\Rightarrow -16 < -8x \leq 16$$

$$\Rightarrow \frac{-16}{-8} > \frac{-8x}{-8} \geq \frac{16}{-8}$$

[Dividing by -8 in the inequation]

$$\Rightarrow 2 > x \geq -2$$

$$\Rightarrow -2 \leq x < 2$$

$$\therefore \text{Solution set} = \{-2, -1, 0, 1\}$$

**Ans.**

SECTION—B

Solution 5.

(a) Given, $B = \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix}$

$$\begin{aligned} \therefore X = B^2 - 4B &= \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix} \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix} - 4 \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix} \\ &= \begin{bmatrix} 1+8 & 1+3 \\ 8+24 & 8+9 \end{bmatrix} - \begin{bmatrix} 4 & 4 \\ 32 & 12 \end{bmatrix} \\ &= \begin{bmatrix} 9 & 4 \\ 32 & 17 \end{bmatrix} - \begin{bmatrix} 4 & 4 \\ 32 & 12 \end{bmatrix} \\ &= \begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix} \end{aligned}$$

Now, $X \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 5 \\ 50 \end{bmatrix}$

$$\Rightarrow \begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 5 \\ 50 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 5a+0 \\ 0+5b \end{bmatrix} = \begin{bmatrix} 5 \\ 50 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 5a \\ 5b \end{bmatrix} = \begin{bmatrix} 5 \\ 50 \end{bmatrix}$$

On comparing the elements of matrices on both the sides, we get

$$5a = 5 \text{ and } 5b = 50$$

$$\Rightarrow a = 1 \text{ and } b = 10$$

(b) Given, N.V. = ₹ 50, M.V. = ₹ 60,

Total income = ₹ 450, Rate of dividend = 10%

∴ Dividend per share

$$= \frac{10}{100} \times ₹ 50 = ₹ 5$$

∴ Number of shares, (n)

$$= \frac{₹ 450}{₹ 5} = 90$$

∴ Investment = M.V. $\times n$

$$= ₹ 60 \times 90 = ₹ 5400$$

$$\therefore \text{Yield percent} = \frac{₹ 5}{₹ 60} \times 100\%$$

$$= \frac{25}{3} = 8.33\%$$

$$= 8\% \text{ (to the nearest whole no.)}$$

(c) Here, sample space,

$$(S) = \{a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p\}$$

$$\therefore n(S) = 16$$

(i) Vowels, $V = \{a, e, i, o\}$

$$\therefore n(V) = 4$$

$$\begin{aligned} \therefore P(a \text{ vowel}) &= \frac{n(V)}{n(S)} \\ &= \frac{4}{16} = \frac{1}{4} \end{aligned}$$

Ans.

(ii) Consonants,

$$C = \{b, c, d, f, g, h, j, k, l, m, n, p\}$$

$$\therefore n(C) = 12$$

$$\begin{aligned} \therefore P(a \text{ consonant}) &= \frac{n(C)}{n(S)} \\ &= \frac{12}{16} = \frac{3}{4} \end{aligned}$$

Ans.

(iii) None of the letters of the word 'median'

$$(N) = \{b, c, f, g, h, j, k, l, o, p\}$$

$$\therefore n(N) = 10$$

$$\begin{aligned} \therefore P(N) &= \frac{n(N)}{n(S)} \\ &= \frac{10}{16} = \frac{5}{8} \end{aligned}$$

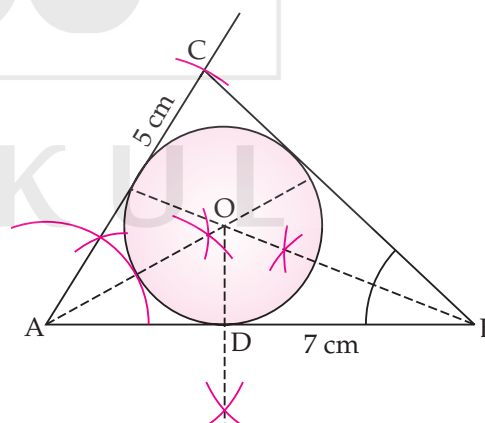
Ans.

Solution 6.

(a) Given, $AB = 7 \text{ cm}$, $\angle CAB = 60^\circ$, $AC = 5 \text{ cm}$

Steps of construction :

1. Construct triangle ABC with given measurements.
2. Draw bisector of $\angle BAC$ which is the locus of points equidistant from AB and AC.
3. Draw bisector of $\angle ABC$ which is the locus of points equidistant from BA and BC.
4. Let the bisectors meet at O.



5. Draw a perpendicular from O to AB intersecting AB at D.

6. Taking O as centre and OD as radius, construct a circle touching the three sides of triangle internally.

(i) Bisector of $\angle A$ (ii) Bisector of $\angle B$

(b) Given, number of persons = 77.

Volume of air required by each person = 16 m^3

\therefore Total volume of air required for 77 persons
 $= 77 \times 16 \text{ m}^3 = 1232 \text{ m}^3$.

Radius (r) = 7 m

Let the height of tent be h m.

Then, Volume of tent = $\frac{1}{3} \pi r^2 h$

$$\Rightarrow 1232 = \frac{1}{3} \times \frac{22}{7} \times 7 \times 7 \times h$$

$$\Rightarrow h = \frac{1232 \times 3}{22 \times 7} = 24 \text{ m}$$

\therefore Required height = 24 m

Now, slant height (l) = $\sqrt{h^2 + r^2}$

$$= \sqrt{24^2 + 7^2} = \sqrt{576 + 49}$$

$$= \sqrt{625} = 25 \text{ m}$$

\therefore The curved surface area

$$= \pi r l$$

$$= \frac{22}{7} \times 7 \times 25$$

$$= 550 \text{ m}^2$$

Ans.

(c) (i) Given, $\frac{7m+2n}{7m-2n} = \frac{5}{3}$

Using componendo and dividendo,

$$\frac{(7m+2n) + (7m-2n)}{(7m+2n) - (7m-2n)} = \frac{5+3}{5-3}$$

$$\Rightarrow \frac{7m+7m}{2n+2n} = \frac{8}{2}$$

$$\Rightarrow \frac{14m}{4n} = \frac{4}{1}$$

$$\Rightarrow \frac{7m}{2n} = \frac{4}{1}$$

$$\Rightarrow \frac{m}{n} = \frac{4}{1} \times \frac{2}{7}$$

$$\Rightarrow m : n = 8 : 7$$

$$(ii) \frac{m}{n} = \frac{8}{7} \Rightarrow \frac{m^2}{n^2} = \frac{64}{49}$$

Using componendo and dividendo,

$$\frac{m^2 + n^2}{m^2 - n^2} = \frac{64 + 49}{64 - 49} = \frac{113}{15}$$

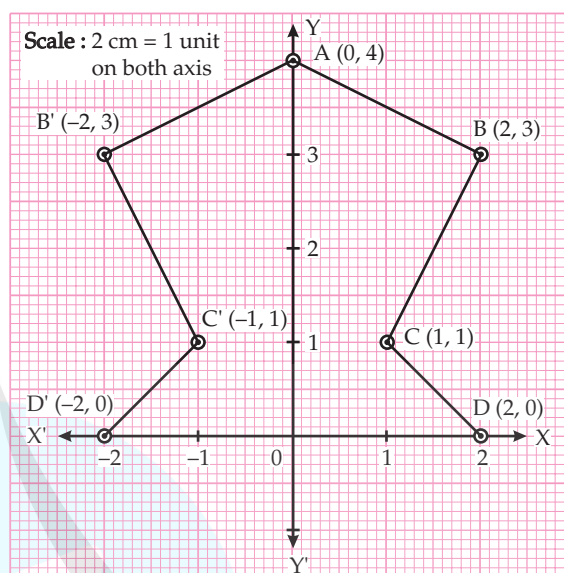
Ans.

Solution 7.

(b) (i) On graph : A (0, 4), B (2, 3), C (1, 1), D (2, 0)

(ii) B' (-2, 3), C' (-1, 1), D' (-2, 0)

(iii)



Solution 8.

(a)

| Marks | Mid values (x_i) | No. of students (f_i) | $d_i = x_i - A$ | $t_i = \frac{d_i}{h}$ | $f_i t_i$ |
|-------|----------------------|---------------------------|-----------------|-----------------------|-----------------------|
| 0-10 | 5 | 10 | -20 | -2 | -20 |
| 10-20 | 15 | 9 | -10 | -1 | -9 |
| 20-30 | 25 = A | 25 | 0 | 0 | 0 |
| 30-40 | 35 | 30 | 10 | 1 | 30 |
| 40-50 | 45 | 16 | 20 | 2 | 32 |
| 50-60 | 55 | 10 | 30 | 3 | 30 |
| | | $\Sigma f_i = 100$ | | | $\Sigma f_i t_i = 63$ |

Let, A = 25 and h = 10

$$\therefore \text{Mean} = A + \frac{\Sigma f_i t_i}{\Sigma f_i} \times h$$

$$= 25 + \frac{63}{100} \times 10$$

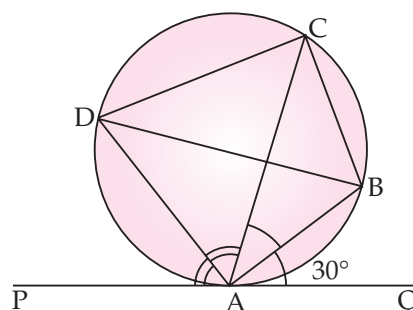
$$= 25 + 6.3$$

$$= 31.3$$

Ans.

Ans.

(b) Given, $\angle BAQ = 30^\circ$, AB and AD are bisectors of $\angle CAQ$ and $\angle PAC$.



(i) $\angle BAC = \angle BAQ = 30^\circ$

(AB bisects $\angle CAQ$)

$\angle CAQ = \angle BAC + \angle BAQ$

$= 30^\circ + 30^\circ = 60^\circ$

$\angle PAC = 180^\circ - \angle CAQ$

(Linear pair)

$= 180^\circ - 60^\circ = 120^\circ$

$\angle CAD = \frac{1}{2} \angle PAC$

(AD bisects $\angle PAC$)

$= \frac{1}{2} \times 120^\circ = 60^\circ$

$\angle BAD = \angle BAC + \angle CAD$

$= 30^\circ + 60^\circ = 90^\circ$

 \therefore BD is a diameter ($\because \angle BAD = 90^\circ =$ angle in a semi-circle)**Hence Proved.**

(ii) $\angle ADB = \angle BAC = 30^\circ$

(angles in an alternate segment are equal)

$\angle ACB = \angle ADB$

(angles in same segment are equal)

$\therefore \angle BAC = \angle ACB = 30^\circ$

$\therefore AB = BC$

(sides opposite to equal angles are equal)

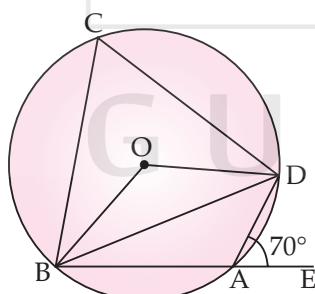
 $\therefore \triangle ABC$ is an isosceles triangle. **Hence Proved.****Solution 9.**

(a) Given, $\angle DAE = 70^\circ$

(i) $\angle BAD + \angle DAE = 180^\circ$ (Linear pair)

$\Rightarrow \angle BAD = 180^\circ - 70^\circ = 110^\circ$

Now, $\angle BCD + \angle BAD = 180^\circ$.

(Sum of opposite angles of cyclic quadrilateral is 180°)

$\Rightarrow \angle BCD = 180^\circ - 110^\circ = 70^\circ$

Ans.

(ii) $\angle BOD = 2 \angle BCD$

(Angle that an arc subtends at the centre is twice the angle at circumference of the circle)

$= 2 \times 70^\circ$

$= 140^\circ$

Ans.

(iii) $\angle OBD = \angle ODB$

(OB = OD = radius)

$\therefore \angle OBD + \angle ODB + \angle BOD = 180^\circ$

(Sum of angles in a triangle is 180°)

$\Rightarrow \angle OBD + \angle OBD + 140^\circ = 180^\circ$

 $(\because \angle OBD = \angle ODB)$

$\Rightarrow 2 \angle OBD = 180^\circ - 140^\circ$

$\Rightarrow \angle OBD = \frac{40^\circ}{2} = 20^\circ$

Ans.

(b) Given, A (-1, 3), B (4, 2), C (3, -2).

(i) Coordinates of centroid

$G = \left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3} \right)$

$= \left(\frac{-1 + 4 + 3}{3}, \frac{3 + 2 - 2}{3} \right)$

$= \left(\frac{6}{3}, \frac{3}{3} \right) = (2, 1)$

Ans.

(ii) Slope of AC = $\frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 3}{3 - (-1)} = \frac{-5}{4}$

Since, required line and the segment joining points A and C are parallel, so their slopes will be equal.

\therefore Slope of the required line (m) = $\frac{-5}{4}$

Let the equation of the line through G, be

$y - y_1 = m(x - x_1)$

$\Rightarrow y - 1 = -\frac{5}{4}(x - 2)$

$\Rightarrow 4y - 4 = -5x + 10$

$\Rightarrow 5x + 4y - 14 = 0$

which is the required equation of line through G and parallel to AC.

Ans.

(c)

L.H.S. = $\frac{\sin \theta - 2 \sin^3 \theta}{2 \cos^3 \theta - \cos \theta}$

$= \frac{\sin \theta (1 - 2 \sin^2 \theta)}{\cos \theta (2 \cos^2 \theta - 1)}$

$= \frac{\sin \theta \{1 - 2(1 - \cos^2 \theta)\}}{\cos \theta (2 \cos^2 \theta - 1)}$

$[\because \sin^2 \theta + \cos^2 \theta = 1 \Rightarrow \sin^2 \theta = 1 - \cos^2 \theta]$

$= \frac{\sin \theta (1 - 2 + 2 \cos^2 \theta)}{\cos \theta (2 \cos^2 \theta - 1)}$

$= \frac{\sin \theta (2 \cos^2 \theta - 1)}{\cos \theta (2 \cos^2 \theta - 1)}$

$= \frac{\sin \theta}{\cos \theta} = \tan \theta = \text{R.H.S.}$

Hence Proved.

Solution 10.

(a) Let Vivek's present age be x years.

\therefore His brother's present age = $(47 - x)$ years.

According to question,

$$x(47 - x) = 550$$

$$\Rightarrow 47x - x^2 = 550$$

$$\Rightarrow x^2 - 47x + 550 = 0$$

$$\Rightarrow x^2 - 25x - 22x + 550 = 0$$

$$\Rightarrow x(x - 25) - 22(x - 25) = 0$$

$$\Rightarrow (x - 25)(x - 22) = 0$$

$$\Rightarrow x - 25 = 0 \text{ or } x - 22 = 0$$

$$\Rightarrow x = 25 \text{ or } x = 22$$

When $x = 25$, $47 - x = 47 - 25 = 22$

When $x = 22$, $47 - x = 47 - 22 = 25$

(does not satisfy the given condition)

\therefore Vivek's age = $x = 25$ years.

His younger brother's age = 22 years.

Ans.

(b)

| Wages (in ₹) | No. of Workers | Cumulative Frequency |
|--------------|----------------|----------------------|
| 400—450 | 2 | 2 |
| 450—500 | 6 | 8 |
| 500—550 | 12 | 20 |
| 550—600 | 18 | 38 |
| 600—650 | 24 | 62 |
| 650—700 | 13 | 75 |
| 700—750 | 5 | 80 |

$$\therefore n = 80$$

(i) Median wage = $\frac{n}{2}$ th value.

$$= \frac{80}{2} \text{th value}$$

$$= 40\text{th value}$$

$$= ₹ 605$$

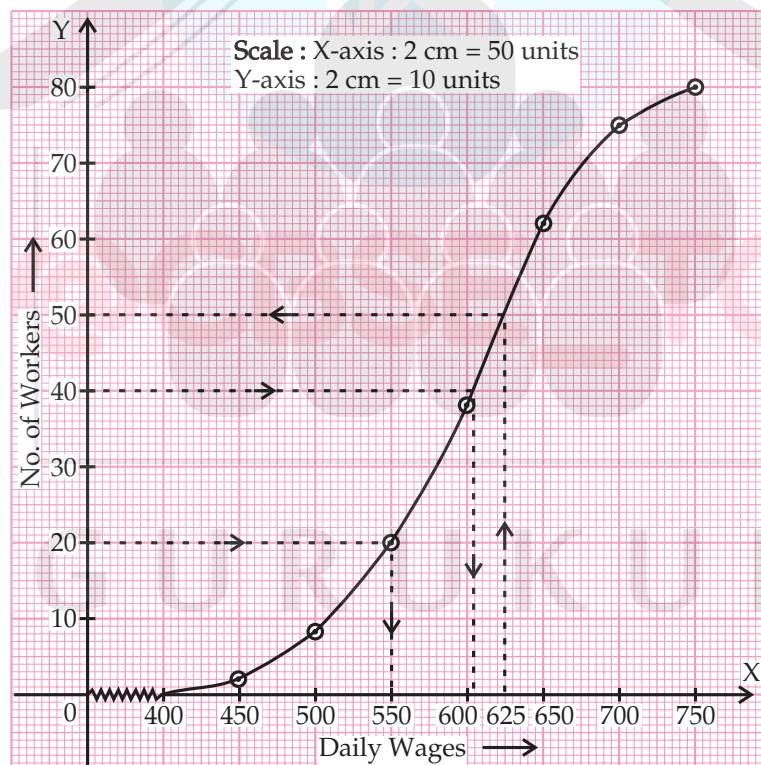
Ans.

(ii) Lower quartile = $\frac{n}{4}$ th value = 20th value
= ₹ 550

Ans.

(iii) No. of workers earning more than ₹ 625 daily
= $80 - 50 = 30$

Ans.

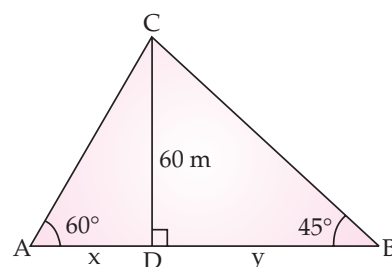
**Solution 11.**

(a) Let CD be the light house

$\therefore CD = 60$ m.

Let $AD = x$ m, $BD = y$ m.

In $\triangle ACD$,



$$\tan 60^\circ = \frac{CD}{AD}$$

$$\Rightarrow \sqrt{3} = \frac{60}{x} \Rightarrow x = \frac{60}{\sqrt{3}}$$

$$\begin{aligned} \Rightarrow x &= \frac{60}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{60\sqrt{3}}{3} \\ &= 20 \times 1.732 \\ &= 34.64 \text{ m} \end{aligned}$$

In ΔBCD ,

$$\tan 45^\circ = \frac{CD}{BD}$$

$$1 = \frac{60}{y}$$

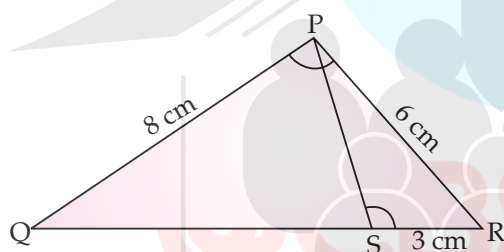
$$\Rightarrow y = 60 \text{ m}$$

\therefore Distance between two ships

$$\begin{aligned} &= x + y = 34.64 + 60 \\ &= 94.64 \text{ m} \\ &= 95 \text{ m} \quad (\text{correct to nearest whole number}) \end{aligned}$$

Ans.

- (b) Given, $\angle PSR = \angle QPR$, $QP = 8 \text{ cm}$, $PR = 6 \text{ cm}$, $SR = 3 \text{ cm}$.



(i) In ΔPQR and ΔSPR

$$\angle PSR = \angle QPR \quad (\text{Given})$$

$$\angle R = \angle R \quad (\text{Common angle})$$

$$\therefore \Delta PQR \sim \Delta SPR \quad (\text{AA axiom})$$

Hence Proved.

Since, corresponding sides of similar Δ s are proportional

$$\begin{aligned} \text{(ii)} \quad \frac{PQ}{PS} &= \frac{QR}{PR} = \frac{PR}{SR} \\ &(\because \Delta PQR \sim \Delta SPR) \end{aligned}$$

$$\therefore \frac{QR}{PR} = \frac{PR}{PS}$$

$$\Rightarrow \frac{QR}{6} = \frac{6}{3}$$

$$\Rightarrow QR = \frac{6 \times 6}{3} = 12 \text{ cm}$$

Ans.

$$\text{Also, } \frac{PQ}{PS} = \frac{PR}{SR}$$

$$\Rightarrow \frac{8}{PS} = \frac{6}{3}$$

$$\Rightarrow PS = \frac{8 \times 3}{6}$$

$$\Rightarrow PS = 4 \text{ cm}$$

Ans.

$$\begin{aligned} \text{(iii)} \quad \frac{\text{Area of } \Delta PQR}{\text{Area of } \Delta SPR} &= \frac{PR^2}{SR^2} \\ &= \frac{6^2}{3^2} \\ &= \frac{36}{9} = \frac{4}{1} = 4 : 1 \end{aligned}$$

Ans.

- (c) No. of months (n) = $3 \times 12 = 36$, $R = 7.5\%$,
Interest = ₹ 8325

(i) Let monthly deposit be ₹ x

$$\therefore I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$8325 = x \times \frac{36 \times 37}{2 \times 12} \times \frac{7.5}{100}$$

$$x = \frac{8325 \times 2 \times 100}{3 \times 37 \times 7.5}$$

$$\therefore x = 2000$$

\therefore Monthly deposit is ₹ 2,000.

Ans.

(ii) Total deposits = ₹ 2,000 \times 36 = ₹ 72,000

$$\begin{aligned} \therefore \text{Maturity value} &= ₹ (72,000 + 8,325) \\ &= ₹ 80,325 \end{aligned}$$

Ans.

••

QUESTIONS

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

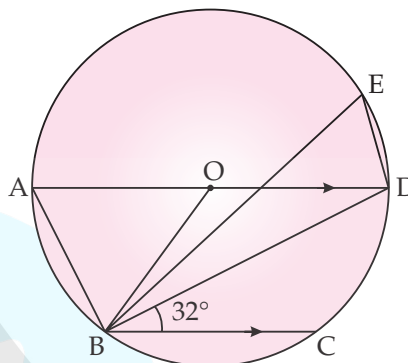
- (a) Using remainder theorem, find the value of k if on dividing $2x^3 + 3x^2 - kx + 5$ by $x - 2$ leaves a remainder 7. [3]
- (b) Given $A = \begin{bmatrix} 2 & 0 \\ -1 & 7 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and $A^2 = 9A + mI$. Find m . [4]
- (c) The mean of following numbers is 68. Find the value of 'x'. [3]
45, 52, 60, x, 69, 70, 26, 81 and 94.
Hence, estimate the median.

Question 2.

- (a) The slope of a line joining P (6, k) and Q (1 - 3k, 3) is $\frac{1}{2}$. Find : [3]
(i) k
(ii) Midpoint of PQ, using the value of 'k' found in (i)
- (b) Without using trigonometrical tables, evaluate : ** [4]
 $\operatorname{cosec}^2 57^\circ - \tan^2 33^\circ + \cos 44^\circ \operatorname{cosec} 46^\circ - \sqrt{2} \cos 45^\circ - \tan^2 60^\circ$
- (c) A certain number of metallic cones, each of radius 2 cm and height 3 cm are melted and recast into a solid sphere of radius 6 cm. Find the number of cones. [3]

Question 3.

- (a) Solve the following inequation, write the solution set and represent it on the number line. [3]
 $-3(x - 7) \geq 15 - 7x > \frac{x+1}{3}, x \in R$
where R is a set of real numbers.
- (b) In the figure given below, AD is a diameter. O is the centre of the circle. AD is parallel to BC and $\angle CBD = 32^\circ$. Find : [4]
(i) $\angle OBD$
(ii) $\angle AOB$
(iii) $\angle BED$



- (c) If $(3a + 2b) : (5a + 3b) = 18 : 29$. Find $a : b$. [3]

Question 4.

- (a) A game of numbers has cards marked with 11, 12, 13,, 40. A card is drawn at random. Find the probability that the number on the card drawn is : [3]
(i) A perfect square
(ii) Divisible by 7
- (b) Use graph paper for this question. [4]
(Take 2 cm = 1 unit along both X and Y axis.)
Plot the points O (0, 0), A (-4, 4), B (-3, 0) and C (0, -3)
(i) Reflect points A and B on the Y-axis and name them A' and B' respectively. Write down their coordinates.
(ii) Name the figure OABCB'A'.
(iii) State the line of symmetry of this figure.**
- (c) Mr. Lalit invested ₹ 5000 at a certain rate of interest, compounded annually for two years. At the end of first year it amounts to ₹ 5325. Calculate, [3]
(i) The rate of interest.
(ii) The amount at the end of second year, to the nearest rupee.**

SECTION—B (40 Marks)

(Attempt any **four** questions from this Section)

Question 5.

- (a) Solve the quadratic equation $x^2 - 3(x + 3) = 0$; Give your answer correct to two significant figures. [3]
- (b) A page from the savings bank account of Mrs. Ravi is given below. [4]

** Answer is not given due to change in the present syllabus.

| Date | Particulars | Withdrawal (₹) | Deposit (₹) | Balance (₹) |
|--------------------|-------------|----------------|-------------|-------------|
| April 3rd, 2006 | B/F | | | 6000 |
| April 7th | By Cash | | 2300 | 8300 |
| April 15th | By Cheque | | 3500 | 11800 |
| May 20th | To Self | 4200 | | 7600 |
| June 10th | By Cash | | 5800 | 13400 |
| June 15th | To Self | 3100 | | 10300 |
| August 13th | By Cheque | | 1000 | 11300 |
| August 25th | To Self | 7400 | | 3900 |
| September 6th 2006 | By Cash | | 2000 | 5900 |

She closed the account on 30th September, 2006. Calculate the interest Mrs. Ravi earned at the end of 30th September, 2006 at 4.5% per annum interest. Hence, find the amount she receives on closing the account.

- (c) In what time will ₹ 1500 yield ₹ 1996.50 as compound interest at 10% per annum compounded annually? **

[3]

Question 6.

- (a) Construct a regular hexagon of side 5 cm. Hence construct all its lines of symmetry and name them. **

[3]

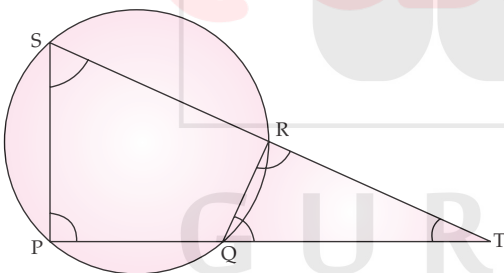
- (b) In the given figure PQRS is a cyclic quadrilateral PQ and SR produced meet at T.

[4]

(i) Prove $\triangle TPS \sim \triangle TRQ$.

(ii) Find SP if TP = 18 cm, RQ = 4 cm and TR = 6 cm.

(iii) Find area of quadrilateral PQRS if area of $\triangle PTS = 27 \text{ cm}^2$.



- (c) Given $A = \begin{bmatrix} 4 \sin 30^\circ & \cos 0^\circ \\ \cos 0^\circ & 4 \sin 30^\circ \end{bmatrix}$ and $B = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$

[3]

If $AX = B$

(i) Write the order of matrix X.

(ii) Find the matrix 'X'.

Question 7.

- (a) An aeroplane at an altitude of 1500 metres finds that two ships are sailing towards it in the same direction. The angles of depression as observed from the aeroplane are 45° and 30° respectively. Find the distance between the two ships.

[4]

- (b) The table shows the distribution of the scores obtained by 160 shooters in a shooting competition. Use a graph sheet and draw an ogive for the distribution. (Take 2 cm = 10 scores on the X-axis and 2 cm = 20 shooters on the Y-axis)

[6]

| Score | No. of Shooters |
|--------|-----------------|
| 0–10 | 9 |
| 10–20 | 13 |
| 20–30 | 20 |
| 30–40 | 26 |
| 40–50 | 30 |
| 50–60 | 22 |
| 60–70 | 15 |
| 70–80 | 10 |
| 80–90 | 8 |
| 90–100 | 7 |

Use your graph to estimate the following :

- (i) The median.
(ii) The interquartile range.
(iii) The number of shooters who obtained a score of more than 85%.

Question 8.

- (a) If $\frac{x}{a} = \frac{y}{b} = \frac{z}{c}$ show that $\frac{x^3}{a^3} + \frac{y^3}{b^3} + \frac{z^3}{c^3} = \frac{3xyz}{abc}$

[3]

- (b) Draw a line AB = 5 cm. Mark a point C on AB such that AC = 3 cm. Using a ruler and a compass only, construct :

[4]

(i) A circle of radius 2.5 cm, passing through A and C.

(ii) Construct two tangents to the circle from the external point B. Measure and record the length of the tangents.

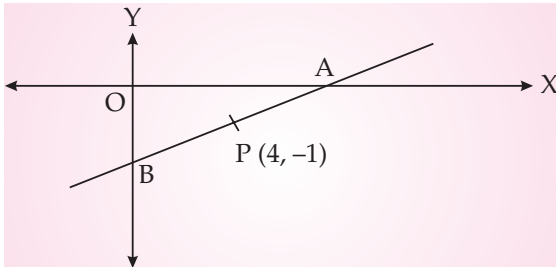
- (c) A line AB meets X-axis at A and Y-axis at B. P (4, -1) divides AB in the ratio 1 : 2.

[3]

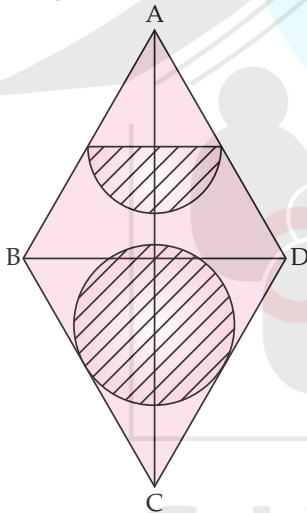
(i) Find the coordinates of A and B.

(ii) Find the equation of the line through P and perpendicular to AB.

** Answer is not given due to change in the present syllabus.

**Question 9.**

- (a) A dealer buys an article at a discount of 30% from the wholesaler, the marked price being ₹ 6,000. The dealer sells it to a shopkeeper at a discount of 10% on the marked price. If the rate of VAT is 6% find. **[3]**
- (i) The price paid by the shopkeeper including the tax.
(ii) The VAT paid by the dealer.
- (b) The given figure represents a kite with a circular and a semicircular motifs stuck on it. The radius of circle is 2.5 cm and the semicircle is 2 cm. If diagonals AC and BD are of lengths 12 cm and 8 cm respectively, find the area of the : **[4]**
- (i) shaded part. Give your answer correct to the nearest whole number.
(ii) unshaded part.



- (c) A model of a ship is made to a scale 1 : 300 **[3]**
- (i) The length of the model of the ship is 2 m. Calculate the length of the ship.
(ii) The area of the deck ship is $180,000 \text{ m}^2$. Calculate the area of the deck of the model.
(iii) The volume of the model is 6.5 m^3 . Calculate the volume of the ship.

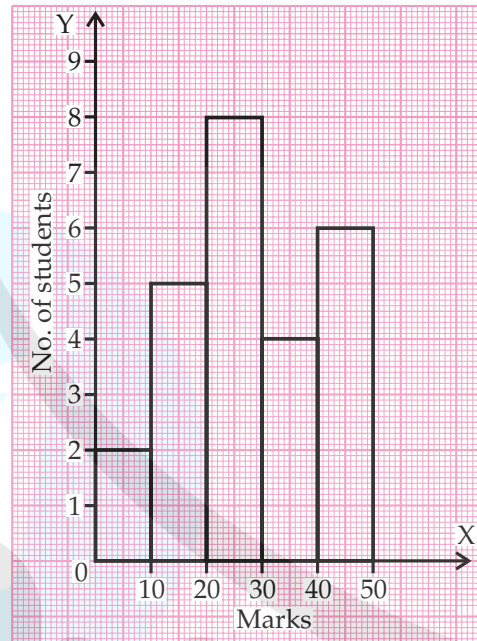
Question 10.

- (a) Mohan has a recurring deposit account in a bank for 2 years at 6% p.a. simple interest. If he gets ₹ 1200 as interest at the time of maturity, find : **[3]**
- (i) the monthly instalment
(ii) the amount of maturity.

** Answer is not given due to change in the present syllabus.

- (b) The histogram below represents the scores obtained by 25 students in a Mathematics mental test. Use the data to : **[4]**

- (i) Frame a frequency distribution table.
(ii) To calculate mean.
(iii) To determine the Modal class.



- (c) A bus covers a distance of 240 km at a uniform speed. Due to heavy rain its speed gets reduced by 10 km/h and as such it takes two hrs longer to cover the total distance. Assuming the uniform speed to be 'x' km/h, form an equation and solve it to evaluate 'x'. **[3]**

Question 11.

- (a) Prove that $\frac{\cos A}{1 + \sin A} + \tan A = \sec A$. **[3]**
- (b) Use ruler and compasses only for the following question. All construction lines and arcs must be clearly shown. **[4]**
- (i) Construct a ΔABC in which $BC = 6.5 \text{ cm}$, $\angle ABC = 60^\circ$, $AB = 5 \text{ cm}$.
(ii) Construct the locus of points at a distance of 3.5 cm from A.
(iii) Construct the locus of points equidistant from AC and BC.
(iv) Mark 2 points X and Y which are at a distance of 3.5 cm from A and also equidistant from AC and BC. Measure XY.
- (c) Ashok invested ₹ 26,400 on 12%, ₹ 25 shares of a company. If he receives a dividend of ₹ 2,475, find the: **[3]**
- (i) number of shares he bought
(ii) Market value of each share

ANSWERS

SECTION—A

Solution 1.

- (a) Here, $f(x) = 2x^3 + 3x^2 - kx + 5$... (i)
and $x - 2 = 0 \Rightarrow x = 2$
Given, remainder is 7 $\Rightarrow f(2) = 7$
Putting $x = 2$ in equation (i), we get
 $f(2) = 2(2)^3 + 3(2)^2 - k(2) + 5$
 $\Rightarrow 16 + 12 - 2k + 5 = 7$
 $\Rightarrow 2k = 26$
 $\Rightarrow k = 13.$

- (b) Here, $A = \begin{bmatrix} 2 & 0 \\ -1 & 7 \end{bmatrix}$

$$\begin{aligned} \Rightarrow A^2 &= A \cdot A = \begin{bmatrix} 2 & 0 \\ -1 & 7 \end{bmatrix} \begin{bmatrix} 2 & 0 \\ -1 & 7 \end{bmatrix} \\ &= \begin{bmatrix} 4+0 & 0+0 \\ -2-7 & 0+49 \end{bmatrix} \\ &= \begin{bmatrix} 4 & 0 \\ -9 & 49 \end{bmatrix} \end{aligned}$$

Given, $A^2 = 9A + mI$

$$\therefore 9 \begin{bmatrix} 2 & 0 \\ -1 & 7 \end{bmatrix} + m \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 4 & 0 \\ -9 & 49 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 18 & 0 \\ -9 & 63 \end{bmatrix} + \begin{bmatrix} m & 0 \\ 0 & m \end{bmatrix} = \begin{bmatrix} 4 & 0 \\ -9 & 49 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 18+m & 0 \\ -9 & 63+m \end{bmatrix} = \begin{bmatrix} 4 & 0 \\ -9 & 49 \end{bmatrix}$$

On comparing both sides, we get

$$18 + m = 4 \text{ and } 63 + m = 49$$

which gives $m = -14.$

- (c) Arithmetic mean = $\frac{\Sigma x}{n}$

$$= \frac{45 + 52 + 60 + x + 69 + 70 + 26 + 81 + 94}{9}$$

$$\Rightarrow 68 = \frac{497 + x}{9}$$

$$\Rightarrow 612 = 497 + x$$

$$\Rightarrow x = 612 - 497$$

$$\Rightarrow x = 115$$

On arranging the given terms in ascending order of magnitude, we get

$$26, 45, 52, 60, 69, 70, 81, 94, 115$$

Since number of terms are odd

$$\begin{aligned} \therefore \text{Median} &= \left(\frac{n+1}{2} \right)^{\text{th}} \text{ term} \\ &= \left(\frac{9+1}{2} \right)^{\text{th}} \text{ term} \end{aligned}$$

$$= 5^{\text{th}} \text{ term} = 69$$

So, the median is 69.

Ans.

Solution 2.

- (a) (i) Let P (6, k) be (x_1, y_1) and Q (1 - 3k, 3) be (x_2, y_2)

Given, slope of a line PQ is $\frac{1}{2}$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{1}{2}$$

Here, $x_1 = 6, x_2 = 1 - 3k, y_1 = k, y_2 = 3$

$$\Rightarrow \frac{3 - k}{(1 - 3k) - 6} = \frac{1}{2}$$

$$\Rightarrow \frac{3 - k}{-5 - 3k} = \frac{1}{2}$$

$$\Rightarrow 2(3 - k) = -5 - 3k$$

$$\Rightarrow 6 - 2k = -5 - 3k$$

$$\Rightarrow k = -11$$

Ans.

- (ii) Coordinates P is (6, -11) and Q is (34, 3)

Midpoint of P (6, -11) and Q (34, 3).

$$\Rightarrow \left(\frac{6+34}{2}, \frac{-11+3}{2} \right) = (20, -4)$$

Ans.

- (c) Volume of metallic cone

$$= \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} \pi \times (2)^2 \times 3 = 4\pi \text{ cm}^3$$

Volume of solid sphere

$$= \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi \times (6)^3$$

$$= 288\pi \text{ cm}^3$$

\therefore Number of cones

$$\begin{aligned} &= \frac{\text{Volume of solid sphere}}{\text{Volume of metallic cone}} \\ &= \frac{288\pi}{4\pi} = 72 \end{aligned}$$

\therefore Number of metallic cones are 72.

Ans.

Solution 3.

- (a) Given, $-3(x-7) \geq 15-7x > \frac{x+1}{3}$

$$\Rightarrow -3(x-7) \geq 15-7x \text{ and } \Rightarrow 15-7x > \frac{x+1}{3}$$

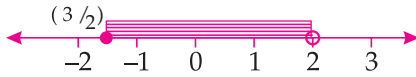
$$\Rightarrow -3x+21 \geq 15-7x \text{ and } \Rightarrow 45-21x > x+1$$

$$\Rightarrow 7x-3x \geq 15-21 \text{ and } \Rightarrow -21x-x > 1-45$$

$$\Rightarrow 4x \geq -6 \text{ and } \Rightarrow -22x > -44$$

$$\Rightarrow x \geq -\frac{3}{2} \text{ and } \Rightarrow x < 2$$

On simplifying, the given inequation reduces to
 $-\frac{3}{2} \leq x < 2$ and the required number line is



Solution 4. set is $\left\{x : -\frac{3}{2} \leq x < 2, x \in \mathbb{R}\right\}$ **Ans.**

(b) (i) Since, AD is parallel to BC and BD is a transversal.

$\therefore \angle ODB = \angle CBD$
 (Alternate interior angles)

Also, $OB = OD$ (Radii)
 $\therefore \angle OBD = \angle ODB = 32^\circ$ **Ans.**

(ii) $\angle AOB = 2 \angle ADB$

(The angle that an arc of a circle subtends at the centre is double which it subtends at any point on the remaining part of the circle)

$$= 2 \times 32^\circ$$

$$= 64^\circ$$

(iii) In ΔAOB ($OA = OB$, radii of circle)

$$\therefore \angle OAB + \angle AOB + \angle OBA = 180^\circ$$

$$\angle OAB + 64^\circ + \angle OAB = 180^\circ$$

$$2 \angle OAB = 180^\circ - 64^\circ$$

$$= 116^\circ$$

$$\angle OAB = 58^\circ$$

$$\angle OAB = \angle BED = 58^\circ$$

(Angles in the same segment)

Ans.

(c) Here, $\frac{3a+2b}{5a+3b} = \frac{18}{29}$

$$87a + 58b = 90a + 54b$$

$$-90a + 87a = -58b + 54b$$

$$-3a = -4b$$

$$\frac{a}{b} = \frac{4}{3}$$

$$a : b = 4 : 3$$

i.e.,

Ans.

Solution 4.

(a) The possible outcomes are 11, 12, 13, ..., 40. Total number of all possible outcomes i.e., $n(S) = 30$

(i) For getting a perfect square :

The favourable outcomes are : 16, 25, 36

No. of favourable outcomes $n(A) = 3$

$$P(A) = \frac{n(A)}{n(S)} = \frac{3}{30} = \frac{1}{10}$$

Ans.

(ii) For getting a number divisible by 7 :

The favourable outcomes are : 14, 21, 28, 35.

No. of favourable outcomes, $n(B) = 4$

Required probability

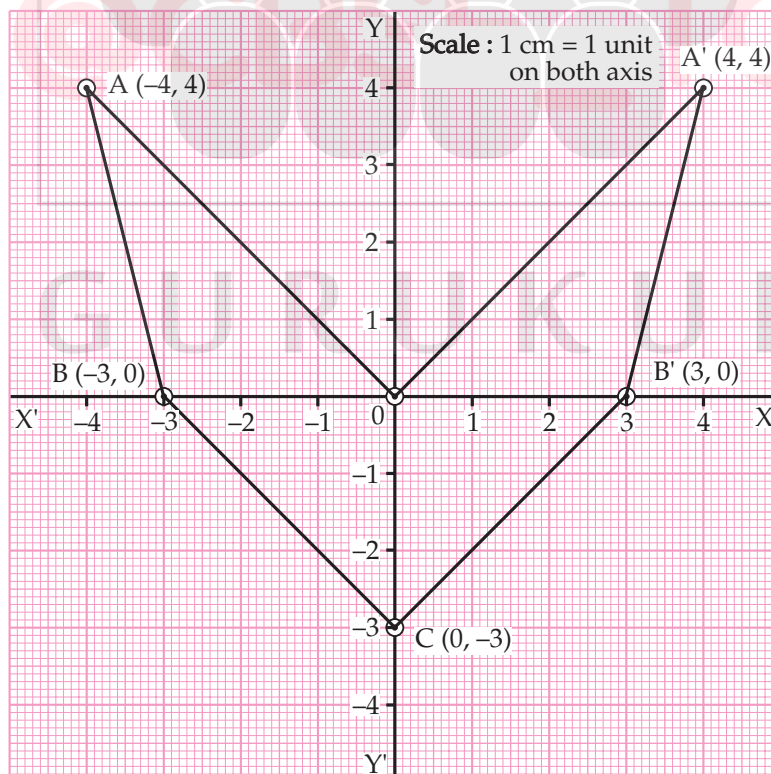
$$P(B) = \frac{n(B)}{n(S)} = \frac{4}{30} = \frac{2}{15}$$

Ans.

(b) (i) Coordinates of $A' = (4, 4)$

Coordinates of $B' = (3, 0)$

(ii) Irregular Hexagon or Concave region



SECTION—B

Solution 5.

(a) Given, $x^2 - 3(x + 3) = 0$
 $x^2 - 3x - 9 = 0$

Compare it with $ax^2 + bx + c = 0$, we get

$a = 1, b = -3$ and $c = -9$

$\therefore D = b^2 - 4ac = (-3)^2 - 4 \times 1 \times (-9)$
 $= 9 + 36 = 45$

$\therefore x = \frac{3 \pm \sqrt{45}}{2 \times 1}$

$\therefore x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$\Rightarrow x = \frac{3 \pm 6.708}{2}$

$\Rightarrow x = \frac{3 + 6.708}{2}$ and $\frac{3 - 6.708}{2}$

$\Rightarrow x = 4.854$ and -1.854

The roots of given equation are 4.85 and -1.85.

Ans.

Solution 6.

(b) (i) In ΔTPS and ΔTRQ

$\angle STP = \angle QTR$ (common)

$\angle TPS = \angle TRQ$

(\therefore Exterior angle of cyclic quadrilateral
 = Interior opposite angle)

$\therefore \Delta TPS \sim \Delta TRQ$ [By AA similarity]

Hence Proved.

(ii) Since $\Delta TPS \sim \Delta TRQ$

$\therefore \frac{TR}{TP} = \frac{RQ}{SP}$

(corresponding sides of similar Δ s are proportional)

$\frac{6}{18} = \frac{4}{SP}$

$SP = \frac{4 \times 18}{6} = 12 \text{ cm}$

Ans.

(iii) We know that the ratio between the areas of two similar triangles is equal to the ratio between the squares of its corresponding sides.

$\frac{\text{ar}(\Delta PTS)}{\text{ar}(\Delta RTQ)} = \frac{(SP)^2}{(QR)^2} = \frac{(12)^2}{(4)^2} = \frac{9}{1}$

$\frac{27}{\text{ar}(\Delta RTQ)} = \frac{9}{1}$

$\text{ar}(\Delta RTQ) = 3 \text{ cm}^2$

$\therefore \text{ar}(\text{quadrilateral PQRS})$

$= \text{ar}(\Delta PTS) - \text{ar}(\Delta RTQ)$

$= 27 - 3 = 24 \text{ cm}^2$

Ans.

(c) (i) Given, $A = \begin{bmatrix} 4 \sin 30^\circ & \cos 0^\circ \\ \cos 0^\circ & 4 \sin 30^\circ \end{bmatrix}$ and $B = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$

$A = \begin{bmatrix} 4 \times \frac{1}{2} & 1 \\ 1 & 4 \times \frac{1}{2} \end{bmatrix}$

$A = \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$

\therefore The order of matrix A is 2×2

and the order of matrix B is 2×1

\therefore The order of matrix X is 2×1 .

Ans.

(ii) Let $X = \begin{bmatrix} x \\ y \end{bmatrix}$

$\therefore \begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$

$\Rightarrow \begin{bmatrix} 2x + y \\ x + 2y \end{bmatrix} = \begin{bmatrix} 4 \\ 5 \end{bmatrix}$

On comparing, we get

$2x + y = 4$... (i)

and $x + 2y = 5$... (ii)

On multiplying equation (ii) by 2 and subtracting it from equation (i)

$2x + y = 4$

$2x + 4y = 10$

$- \quad - \quad -$

$-3y = -6$

$y = 2$

From equation (i)

$2x + y = 4$

$\Rightarrow 2x + 2 = 4$

$x = 1$

\therefore The matrix $X = \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$

Ans.

Solution 7.

(a) Let AB be the altitude and C and D be the positions of two ships.

In right angled triangle ABC,

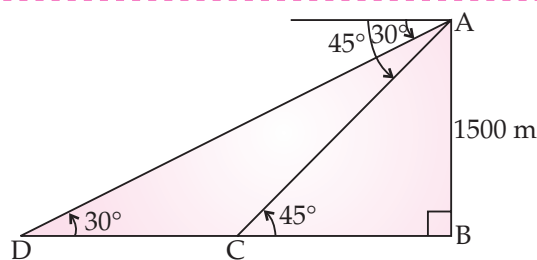
$\tan 45^\circ = \frac{1500}{BC}$

$1 = \frac{1500}{BC}$

$BC = 1500 \text{ m}$

In right angled triangle ABD,

$\tan 30^\circ = \frac{1500}{BD}$



$$\frac{1}{\sqrt{3}} = \frac{1500}{BD}$$

$$\Rightarrow BD = 1500 \sqrt{3}$$

$$= 1500 \times 1.732$$

$$= 2598 \text{ m}$$

\therefore Distance between the two ships

$$= CD$$

$$= BD - BC$$

$$= 2598 - 1500$$

$$= 1098 \text{ m}$$

Ans.

(b)

| Scores | No. of Shooters | Cumulative frequency (c. f.) |
|--------|-----------------|------------------------------|
| 0—10 | 9 | 9 |
| 10—20 | 13 | 22 |
| 20—30 | 20 | 42 |
| 30—40 | 26 | 68 |
| 40—50 | 30 | 98 |
| 50—60 | 22 | 120 |
| 60—70 | 15 | 135 |
| 70—80 | 10 | 145 |
| 80—90 | 8 | 153 |
| 90—100 | 7 | 160 |

Using graph = 160

(i) Since, $n = 160$ (even)

$$\text{Median} = \left(\frac{n}{2}\right)^{\text{th}} \text{ term}$$

$$= \left(\frac{160}{2}\right)^{\text{th}} \text{ term}$$

$$= 80^{\text{th}} \text{ term}$$

$$= 44$$

(ii) Lower quartile

$$(Q_1) = \left(\frac{n}{4}\right)^{\text{th}} \text{ term}$$

$$= \left(\frac{160}{4}\right)^{\text{th}} = 40^{\text{th}} \text{ term.}$$

$$= 29$$

Upper quartile

$$(Q_3) = \left(\frac{3n}{4}\right)^{\text{th}} \text{ term}$$

$$= \left(\frac{3 \times 160}{4}\right)^{\text{th}} \text{ term}$$

$$= 120^{\text{th}} \text{ term.}$$

$$= 60$$

Inter-quartile range

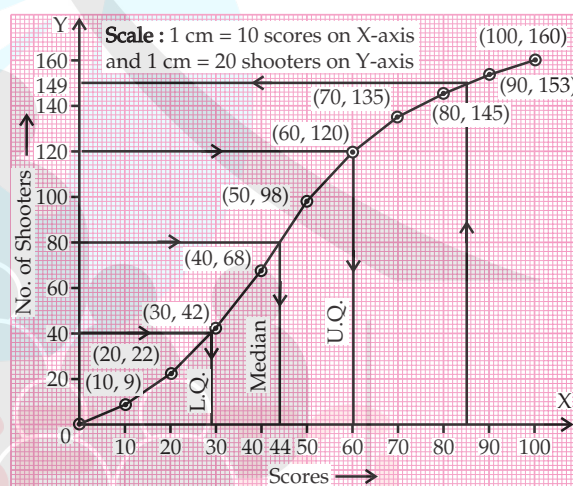
$$= Q_3 - Q_1$$

$$= 60 - 29 = 31$$

Ans.

(iii) Since, 85% scores = 85% of 100 = 85.

Through mark for 85 on X-axis, draw a vertical line which meets the ogive at any point. Through that point, draw a horizontal line which meets the Y-axis at the mark of 149.



\therefore The no. of shooters who obtained a score of more than 85%

$$= 160 - 149 = 11$$

Ans.

Note : Instead of 2 cm = 1 unit, we have taken 1 cm = 1 unit both axes.

Solution 8.

(a) Let $\frac{x}{a} = \frac{y}{b} = \frac{z}{c} = k$

then $x = ak$, $y = bk$ and $z = ck$.

Putting the values of x , y and z , in the given equation, we get

$$\text{L.H.S.} = \frac{x^3}{a^3} + \frac{y^3}{b^3} + \frac{z^3}{c^3}$$

$$= \frac{(ak)^3}{a^3} + \frac{(bk)^3}{b^3} + \frac{(ck)^3}{c^3}$$

$$= \frac{a^3 k^3}{a^3} + \frac{b^3 k^3}{b^3} + \frac{c^3 k^3}{c^3}$$

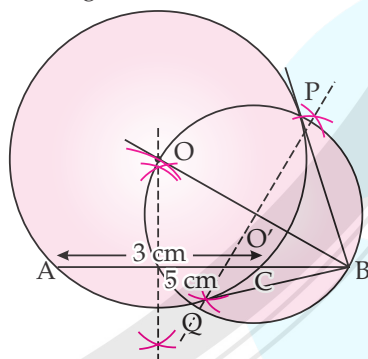
$$= k^3 + k^3 + k^3 = 3k^3$$

$$\begin{aligned} \text{R.H.S.} &= \frac{3xyz}{abc} \\ &\quad (\text{Put the value of } x, y \text{ and } z) \\ &= \frac{3(ak)(bk)(ck)}{abc} \\ &= 3k^3 \end{aligned}$$

\therefore L.H.S. = R.H.S. **Hence Proved.**

(b) (i) Steps of construction :

1. Draw a line $AB = 5$ cm.
2. Mark a point C on AB such that $AC = 3$ cm.
3. Draw a perpendicular bisector of AC .
4. Mark a point O on perpendicular bisector from A of length 2.5 cm.



5. Taking O as centre and OA as radius draw a circle, which is the required circle.

(ii) 1. Join O and B .

2. Draw a circle with OB as diameter which cuts the given circle at points P and Q . For this draw perpendicular bisector of OB which cuts OB at O' . Draw a circle with OO' as radius.

3. This circle with centre O' cut the other circle at P and Q .

4. Join PB and QB , which are the required tangents.

$$QB = PB = 3 \text{ cm}$$

Hence, length of tangents is 3 cm.

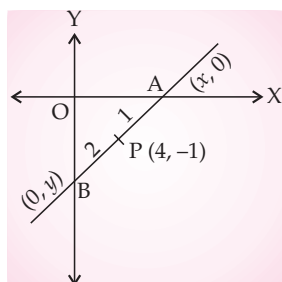
(c) (i) Let the coordinates of A be $(x, 0)$ and B be $(0, y)$.

Given, $P = (4, -1)$ divides AB in the ratio $1 : 2$.

$$\text{Now, } x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$$

$$4 = \frac{1 \times 0 + 2 \times x}{1 + 2}$$

$$4 = \frac{2x}{3}$$



$$\therefore x = 6$$

$$\text{and } y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$$

$$-1 = \frac{1 \times y + 2 \times 0}{1 + 2}$$

$$-1 = \frac{y}{3}$$

$$\therefore y = -3$$

\therefore Coordinates of A are $(6, 0)$ and coordinates of B are $(0, -3)$. **Ans.**

$$(ii) \text{ Slope of } AB = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - 0}{0 - 6} = \frac{-3}{-6} = \frac{1}{2}$$

Now, slope of the line perpendicular to AB

$$= -\frac{1}{\text{slope of } AB}$$

$$= -\frac{1}{1/2} = -2$$

Equation of line, which passes through $P(4, -1)$, and \perp to AB and has slope -2 is

$$y - y_1 = m(x - x_1)$$

$$y - (-1) = -2(x - 4)$$

$$y + 1 = -2x + 8$$

$$\text{Hence, } 2x + y = 7$$

Ans.

Solution 9.

$$(c) \text{ Given, scale factor } (k) = \frac{1}{300}$$

$$(i) \frac{\text{Length of the model}}{\text{Length of the ship}} = k = \frac{1}{300}$$

$$\Rightarrow \frac{2}{\text{Length of ship}} = \frac{1}{300}$$

$$\text{Length of the ship} = 2 \times 300 = 600 \text{ m}$$

Ans.

$$(ii) \frac{\text{Area of the deck of the model}}{\text{Area of the deck of the ship}} = k^2$$

$$\frac{\text{Area of deck of model}}{1,80,000} = \frac{1 \times 1}{300 \times 300}$$

Area of the deck of the model

$$= \frac{180,000}{300 \times 300} = 2 \text{ m}^2$$

Ans.

$$(iii) \frac{\text{Volume of model}}{\text{Volume of the ship}} = k^3$$

$$\Rightarrow \frac{6.5}{\text{Volume of ship}} = \frac{1 \times 1 \times 1}{300 \times 300 \times 300}$$

$$\text{Volume of the ship} = 6.5 \times 300 \times 300 \times 300$$

$$= 17,55,00,000 \text{ m}^3$$

Ans.

Solution 10.

- (a) (i) Given, number of months (n) = 24 and rate of interest (r) = 6% and Interest = ₹ 1,200

$$I = P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$1200 = P \times \frac{24(24+1)}{2 \times 12} \times \frac{6}{100}$$

$$P = \frac{1,200 \times 24 \times 100}{6 \times 24 \times 25}$$

$$= ₹ 800$$

∴ Monthly instalment = ₹ 800

- (ii) Sum deposited = ₹ 800 × 24

$$= ₹ 19,200$$

Amount of maturity = ₹ 19,200 + ₹ 1,200

$$= ₹ 20,400$$

Ans.**Ans.**

- (b) (i) Using the given data, frequency distribution table is as given below :

| Marks | No. of Students (f) | Class mark (x) | fx |
|-------|-------------------------|--------------------|-------------------|
| 0—10 | 2 | 5 | 10 |
| 10—20 | 5 | 15 | 75 |
| 20—30 | 8 | 25 | 200 |
| 30—40 | 4 | 35 | 140 |
| 40—50 | 6 | 45 | 270 |
| | $\Sigma f = n = 25$ | | $\Sigma fx = 695$ |

- (ii) To Calculate Mean : Construct expanded table with class mark and fx as given above.

$$\therefore n = \Sigma f = 25 \text{ and } \Sigma fx = 695$$

$$\text{Mean} = \frac{\Sigma fx}{n} = \frac{695}{25} = 27.8$$

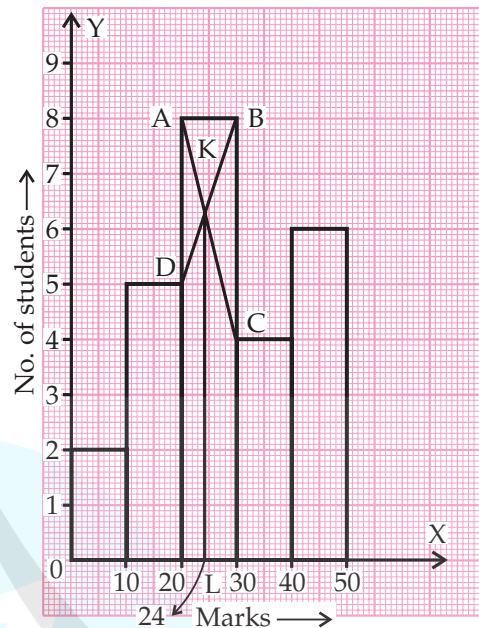
Ans.

- (iii) 1. In the given histogram, inside the highest rectangle, which represents the maximum frequency (or modal class) draw two lines AC and BD diagonally from the upper corners to C and D of adjacent rectangles.

2. Both the lines meet at a point K. Through the point K, draw KL perpendicular to the horizontal axis.

3. The value of point L on the horizontal axis represents the value of mode.

∴ Mode = 24 and the modal class = 20 – 30.



- (c) Let the uniform speed of bus be x km/h.

$$\therefore \text{Time taken by it to cover 240 km} = \frac{240}{x} \text{ hrs.}$$

$$\left[\because T = \frac{D}{S} \right]$$

Reduced speed of bus = $(x - 10)$ km/hr

∴ So, time taken by the bus to cover 240 km

$$= \frac{240}{x - 10} \text{ hrs.}$$

Now, according to the given condition

$$\therefore \frac{240}{x - 10} - \frac{240}{x} = 2$$

$$\Rightarrow 240 \left(\frac{1}{x - 10} - \frac{1}{x} \right) = 2$$

$$\Rightarrow 120 \left(\frac{x - (x - 10)}{x(x - 10)} \right) = 1$$

$$\Rightarrow 120 \left(\frac{10}{x(x - 10)} \right) = 1$$

$$\Rightarrow x^2 - 10x - 1200 = 0$$

On splitting the middle term

$$\Rightarrow x^2 - 40x + 30x - 1200 = 0$$

$$\Rightarrow x(x - 40) + 30(x - 40) = 0$$

$$\Rightarrow (x - 40)(x + 30) = 0$$

$$\Rightarrow x = 40$$

$$\text{or } x = -30$$

Since, speed cannot be negative.

Hence, the value of $x = 40$.

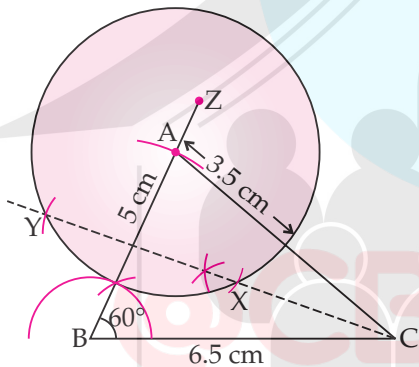
i.e., the uniform speed of bus is 40 km/hr. **Ans.**

Solution 11.

$$\begin{aligned}
 \text{(a)} \quad \text{L.H.S.} &= \frac{\cos A}{1 + \sin A} + \tan A \\
 &= \frac{\cos A}{1 + \sin A} + \frac{\sin A}{\cos A} \quad \left[\because \tan \theta = \frac{\sin \theta}{\cos \theta} \right] \\
 &= \frac{\cos^2 A + \sin A + \sin^2 A}{(1 + \sin A) \cos A} \\
 &= \frac{1 + \sin A}{(1 + \sin A) \cos A} \\
 &\quad [\because \cos^2 \theta + \sin^2 \theta = 1] \\
 &= \frac{1}{\cos A} = \sec A = \text{R.H.S.}
 \end{aligned}$$

Hence Proved.**(b) Steps of Construction :**

- (i) 1. Draw a line $BC = 6.5$ cm.
2. At B , draw BZ making an angle of 60° with BC .
3. With B as centre, draw an arc of 5 cm. It cuts BZ at point A .
4. Join AC .



(ii) Taking A as centre and 3.5 cm as radius, draw a circle which is the required locus of points.

(iii) Draw the bisector of angle of vertex ACB , which is the required locus of points equidistant from AC and BC .

From A cut the arcs of length 3.5 cm on the line which is the angle bisector of $\angle BCA$ and touch the circle with centre A . The required points are X and Y .

(iv) Length of $XY = 5$ cm.

(c) (i) Given, nominal value of share = ₹ 25, Rate of dividend = 12%

Total dividend = ₹ 2,475

Total money invested = ₹ 26,400

Dividend on each share

$$= \text{Rate of dividend} \times \text{N. V.}$$

$$= \frac{12}{100} \times 25 = ₹ 3$$

No. of shares bought

$$= \frac{\text{Total dividend}}{\text{Dividend on each share}}$$

$$= \frac{2475}{3}$$

$$= 825$$

Ans.

(ii) Market value of each share

$$= \frac{\text{Sum invested}}{\text{No. of shares}}$$

$$= \frac{26,400}{825}$$

$$= ₹ 32.$$

Ans.

●●

GURUKUL

QUESTIONS

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

- (a) A shopkeeper bought an article for ₹ 3,450. He marks the price of the article 16% above the cost price. The rate of sales tax charged on the article is 10%. Find the :^{**}

- (i) marked price of the article.
(ii) price paid by a customer who buys the article. [3]

- (b) Solve the following inequation and write the solution set :

$$13x - 5 < 15x + 4 < 7x + 12, x \in \mathbb{R}$$

Represent the solution on a real number line. [3]

- (c) Without using trigonometric tables evaluate :^{**} [4]

$$\frac{\sin 65^\circ}{\cos 25^\circ} + \frac{\cos 32^\circ}{\sin 58^\circ} - \sin 28^\circ \cdot \sec 62^\circ + \operatorname{cosec}^2 30^\circ$$

Question 2.

- (a) If $A = \begin{bmatrix} 3 & x \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & 16 \\ 0 & -y \end{bmatrix}$, find x and y when $A^2 = B$. [3]

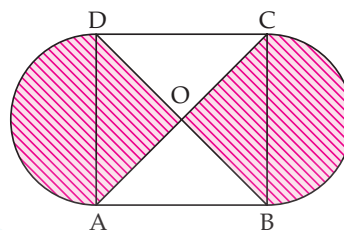
- (b) The present population of a town is 2,00,000. Its population increases by 10% in the first year and 15% in the second year. Find the population of the town at the end of the two years.^{**} [3]

- (c) Three vertices of a parallelogram ABCD taken in order are A (3, 6), B (5, 10) and C (3, 2) find :

- (i) the coordinates of the fourth vertex D.
(ii) length of diagonal BD.^{**}
(iii) equation of side AB of the parallelogram ABCD. [4]

Question 3.

- (a) In the given figure, ABCD is a square of side 21 cm. AC and BD are two diagonals of the square. Two semi circles are drawn with AD and BC as diameters. Find the area of the shaded region.^{**} (Take $\pi = \frac{22}{7}$) [3]

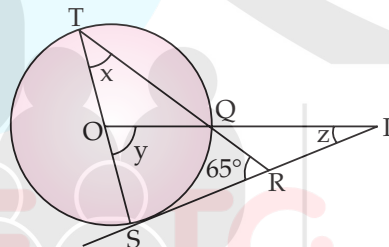


- (b) The marks obtained by 30 students in a class assessment of 5 subjects is given below :

| Marks | 0 | 1 | 2 | 3 | 4 | 5 |
|-----------------|---|---|---|----|---|---|
| No. of Students | 1 | 3 | 6 | 10 | 5 | 5 |

Calculate the mean, median and mode of the above distribution. [3]

- (c) In the figure given below, O is the centre of the circle and SP is a tangent. If $\angle SRT = 65^\circ$, find the value of x , y and z . [4]



Question 4.

- (a) Katrina opened a recurring deposit account with a Nationalised Bank for a period of 2 years. If the bank pays interest at the rate of 6% per annum and the monthly instalment is ₹ 1,000, find the :

- (i) interest earned in 2 years.
(ii) maturity value. [3]

- (b) Find the value of 'K' for which $x = 3$ is a solution of the quadratic equation, $(K + 2)x^2 - Kx + 6 = 0$.

Thus, find the other root of the equation. [3]

- (c) Construct a regular hexagon of side 5 cm. Construct a circle circumscribing the hexagon. All traces of construction must be clearly shown. [4]

SECTION—B (40 Marks)

(Attempt any **four** questions from this Section)

Question 5.

- (a) Use a graph paper for this question take 1 cm = 1 unit along both the X and Y axis :

^{**} Answer is not given due to change in the present syllabus.

(i) Plot the points $A(0, 5)$, $B(2, 5)$, $C(5, 2)$, $D(5, -2)$, $E(2, -5)$ and $F(0, -5)$.

(ii) Reflect the points B , C , D and E on the Y -axis and name them respectively as B' , C' , D' and E' .

(iii) Write the coordinates of B' , C' , D' and E' .

(iv) Name the figure formed by $BCDEE'D'C'B'$.

(v) Name a line of symmetry for the figure formed. ** [5]

(b) Virat opened a Savings Bank account in a bank on 16th April, 2010. His pass book shows the following entries: **

| Date | Particulars | Withdrawal (₹) | Deposit (₹) | Balance (₹) |
|------------------------|-------------|----------------|-------------|-------------|
| April 16, 2010 | By Cash | — | 2500 | 2500 |
| April 28 th | By Cheque | — | 3000 | 5500 |
| May 9 th | To Cheque | 850 | — | 4650 |
| May 15 th | By Cash | — | 1600 | 6250 |
| May 24 th | To Cash | 1000 | — | 5250 |
| June 4 th | To Cash | 500 | — | 4750 |
| June 30 th | By Cheque | — | 2400 | 7150 |
| July 3 rd | By Cash | — | 1800 | 8950 |

Calculate the interest Virat earned at the end of 31st July, 2010 at 4% per annum interest. What sum of money will he receive if he closes the account on 1st August, 2010?

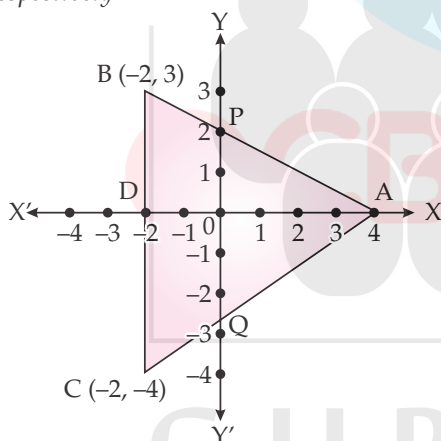
(b) Find 'a' if the two polynomials $ax^3 + 3x^2 - 9$ and $2x^3 + 4x + a$, leaves the same remainder when divided by $x + 3$. [3]

(c) Prove that $\frac{\sin \theta}{1 - \cot \theta} + \frac{\cos \theta}{1 - \tan \theta} = \cos \theta + \sin \theta$ [4]

Question 6.

(a) If a , b , c are in continued proportion, prove that $(a + b + c)(a - b + c) = a^2 + b^2 + c^2$. [3]

(b) In the given figure ABC is a triangle and BC is parallel to the Y -axis. AB and AC intersect the y -axis at P and Q respectively.



(i) Write the coordinates of A .

(ii) Find the length of AB and AC . **

(iii) Find the ratio in which Q divides AC .

(iv) Find the equation of the line AC . [4]

(c) Calculate the mean of the following distribution : [3]

| Class Interval | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 |
|----------------|------|-------|-------|-------|-------|-------|
| Frequency | 8 | 5 | 12 | 35 | 24 | 16 |

Question 7.

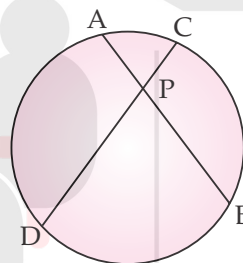
(a) Two solid spheres of radii 2 cm and 4 cm are melted and recast into a cone of height 8 cm. Find the radius of the cone so formed. [3]

** Answer is not given due to change in the present syllabus.

Question 8.

(a) AB and CD are two chords of a circle intersecting at P .

Prove that $AP \times PB = CP \times PD$ [3]



(b) A bag contains 5 white balls, 6 red balls and 9 green balls. A ball is drawn at random from the bag. Find the probability that the ball drawn is :

(i) a green ball

(ii) a white or red ball

(iii) is neither a green ball nor a white ball. [3]

(c) Rohit invested ₹ 9,600 on ₹ 100 shares at ₹ 20 premium paying 8% dividend. Rohit sold the shares when the price rose to ₹ 160. He invested the proceeds (excluding dividend) in 10% ₹ 50 shares at ₹ 40. Find the :

(i) original number of shares.

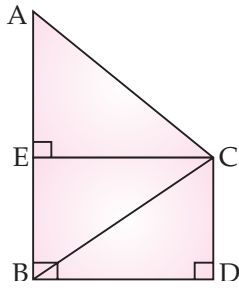
(ii) sale proceeds.

(iii) new number of shares.

(iv) change in the two dividends. [4]

Question 9.

(a) The horizontal distance between two towers is 120 m. The angle of elevation of the top and angle of depression of the bottom of the first tower as observed from the second tower is 30° and 24° respectively.



Find the height of the two towers. Give your answer correct to 3 significant figures. [4]

- (b) The weight of 50 workers is given below:

| Weight in kg | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 | 110-120 |
|----------------|-------|-------|-------|-------|--------|---------|---------|
| No. of Workers | 4 | 7 | 11 | 14 | 6 | 5 | 3 |

Draw an ogive of the given distribution using a graph sheet. Take 2 cm = 10 kg on one axis and 2 cm = 5 workers along the other axis. Use a graph to estimate the following :

- the upper and lower quartiles.
- if weight 95 kg and above is considered overweight find the number of workers who are overweight.

[6]

Question 10.

- A wholesaler buys a TV from the manufacturer for ₹ 25,000. He marks the price of the TV 20% above his cost price and sells it to a retailer at a 10% discount on the marked price. If the rate of VAT is 8%, Find the : **
 - marked price.
 - retailer's cost price inclusive of tax.
 - VAT paid by the wholesaler.

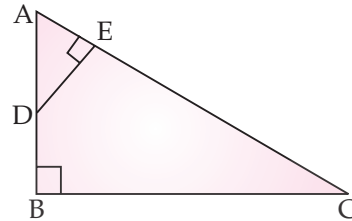
[3]

- (b) If $A = \begin{bmatrix} 3 & 7 \\ 2 & 4 \end{bmatrix}$, $B = \begin{bmatrix} 0 & 2 \\ 5 & 3 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & -5 \\ -4 & 6 \end{bmatrix}$

Find $AB - 5C$.

[3]

- (c) ABC is a right angled triangle with $\angle ABC = 90^\circ$, D is any point on AB and DE is perpendicular to AC. Prove that :



- (i) $\triangle ADE \sim \triangle ACB$.

- (ii) If $AC = 13$ cm, $BC = 5$ cm and $AE = 4$ cm. Find DE and AD.

- (iii) Find area of $\triangle ADE$: area of quadrilateral BCED.

[4]

Question 11.

- (a) Sum of two natural numbers is 8 and the difference of their reciprocal is $\frac{2}{15}$. Find the numbers. [3]

- (b) Given $\frac{x^3 + 12x}{6x^2 + 8} = \frac{y^3 + 27y}{9y^2 + 27}$. Using componendo and dividendo find $x : y$. [3]

- (c) Construct a triangle ABC with $AB = 5.5$ cm, $AC = 6$ cm and $\angle BAC = 105^\circ$. Hence :

- Construct the locus of points equidistant from BA and BC.
- Construct the locus of points equidistant from B and C.
- Mark the point which satisfies the above two loci as P. Measure and write the length of PC.

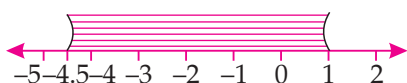
[4]

ANSWERS

SECTION—A

Solution 1.

- (b) Given, $13x - 5 < 15x + 4 < 7x + 12$
- $$\Rightarrow 13x - 5 < 15x + 4 \text{ and } 15x + 4 < 7x + 12$$
- $$\Rightarrow 13x - 15x < 4 + 5 \text{ and } 15x - 7x < 12 - 4$$
- $$\Rightarrow -2x < 9 \text{ and } 8x < 8$$
- $$\Rightarrow -x < \frac{9}{2} \text{ and } x < 1$$
- $$\Rightarrow x > -4.5$$
- \therefore Solution set $= \{x : -4.5 < x < 1 \text{ and } x \in \mathbb{R}\}$
- Required number line,



Ans.

** Answer is not given due to change in the present syllabus.

Solution 2.

- (a) Here, $A = \begin{bmatrix} 3 & x \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & 16 \\ 0 & -y \end{bmatrix}$

$$A^2 = A \cdot A = \begin{bmatrix} 3 & x \\ 0 & 1 \end{bmatrix} \begin{bmatrix} 3 & x \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 9+0 & 3x+x \\ 0+0 & 0+1 \end{bmatrix}$$

$$= \begin{bmatrix} 9 & 4x \\ 0 & 1 \end{bmatrix}$$

According to the given condition,

$$A^2 = B$$

$$\begin{bmatrix} 9 & 4x \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 9 & 16 \\ 0 & -y \end{bmatrix}$$

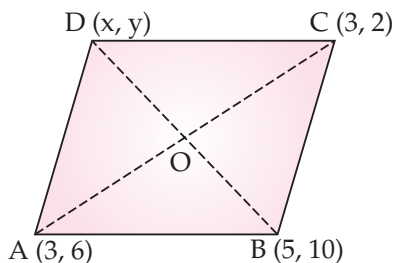
On comparing, we get,

$$4x = 16 \text{ and } -y = 1$$

$$\therefore x = 4 \text{ and } y = -1. \quad \text{Ans.}$$

- (c) (i) Let the coordinates of the fourth vertex of a parallelogram be D (x, y).

Since, diagonals of a parallelogram bisect each other



∴ Mid point of AC = Mid point of BD

$$\Rightarrow \left(\frac{3+3}{2}, \frac{6+2}{2} \right) = \left(\frac{5+x}{2}, \frac{10+y}{2} \right)$$

$$\Rightarrow (3, 4) = \left(\frac{5+x}{2}, \frac{10+y}{2} \right)$$

$$\Rightarrow \frac{5+x}{2} = 3 \text{ and } \frac{10+y}{2} = 4$$

$$\Rightarrow 5+x = 6 \text{ and } 10+y = 8$$

$$\Rightarrow x = 1 \text{ and } y = -2$$

∴ The coordinates of the fourth vertex D is (1, -2).

- (iii) Here, A = (3, 6) and B (5, 10)

$$\text{i.e., } x_1 = 3, x_2 = 5$$

$$y_1 = 6, y_2 = 10,$$

$$\therefore m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{10 - 6}{5 - 3} = 2$$

∴ Equation of side AB of the parallelogram ABCD is

$$y - y_1 = m(x - x_1)$$

$$\Rightarrow y - 6 = 2(x - 3)$$

$$\Rightarrow y - 6 = 2x - 6$$

$$\Rightarrow y = 2x \text{ or } 2x - y = 0$$

Solution 3.

(b)

| Marks (x) | No. of students (f) | (f · x) | Cumulative frequency (c.f.) |
|-----------|---------------------|------------------|-----------------------------|
| 0 | 1 | 0 | 1 |
| 1 | 3 | 3 | 4 |
| 2 | 6 | 12 | 10 |
| 3 | 10 | 30 | 20 |
| 4 | 5 | 20 | 25 |
| 5 | 5 | 25 | 30 |
| | $\Sigma f = 30$ | $\Sigma fx = 90$ | |

$$\therefore \text{Mean} = \frac{\Sigma fx}{\Sigma f} = \frac{90}{30} = 3$$

∴ Mean marks is 3.

Here, $n = 30$, which is even

$$\begin{aligned} \therefore \text{Median} &= \frac{\left(\frac{n}{2} \right)^{\text{th}} \text{ term} + \left(\frac{n+1}{2} \right)^{\text{th}} \text{ term}}{2} \\ &= \frac{\left(\frac{30}{2} \right)^{\text{th}} \text{ term} + \left(\frac{30}{2} + 1 \right)^{\text{th}} \text{ term}}{2} \\ &= \frac{15^{\text{th}} \text{ term} + 16^{\text{th}} \text{ term}}{2} \\ &= \frac{3+3}{2} \end{aligned}$$

∴ Median marks = 3

Since, the number 3 has maximum frequency 10.

∴ Mode = 3

∴ Mean = 3, Median = 3 and Mode = 3. **Ans.**

(c) Given, $\angle SRT = 65^\circ$ and SP is a tangent

∴ $\angle TSR = 90^\circ$

(angle between the radius and tangent)

In ΔSTR ,

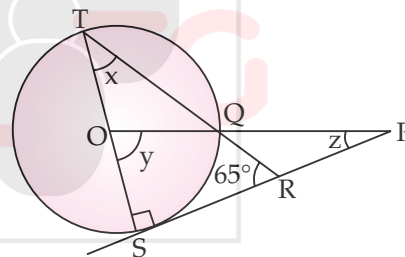
$$\angle TSR + \angle SRT + \angle STR = 180^\circ$$

(Angle sum property of triangle)

$$\therefore \angle STR = 180^\circ - (65^\circ + 90^\circ)$$

$$x = 180^\circ - 155^\circ$$

$$x = 25^\circ$$



$$\angle y = 2 \angle x$$

(Angle subtended at the centre is double that of the angle subtended by the arc at same centre)

$$\therefore y = 2 \times 25^\circ = 50^\circ$$

In ΔSPO ,

$$\angle SOP + \angle OSP + \angle SPO = 180^\circ$$

(Angle sum property of triangle)

$$\therefore \angle SPO = 180^\circ - (90^\circ + 50^\circ)$$

$$z = 40^\circ$$

Hence, $x = 25^\circ$, $y = 50^\circ$ and $z = 40^\circ$ **Ans.**

Solution 4.

(a) Since, money deposited = ₹ 1,000 per month i.e., $P = ₹ 1,000$

and number of months = $2 \times 12 = 24$ i.e., $n = 24$ and $r = 6\%$

(i) Interest earned in 2 years

$$\begin{aligned}
 &= P \times \frac{n(n+1)}{2 \times 12} \times \frac{r}{100} \\
 &= 1,000 \times \frac{24(24+1)}{2 \times 12} \times \frac{6}{100} \\
 &= ₹ 1,500.
 \end{aligned}$$

Ans.

(ii) Maturity value = Sum deposited + Interest

$$\begin{aligned}
 &= ₹ (1,000 \times 24) + ₹ 1,500 \\
 &= ₹ 25,500
 \end{aligned}$$

Ans.

(b) Since $x = 3$ is the solution of the given equation $(K+2)x^2 - Kx + 6 = 0$... (i)

we get,

$$\begin{aligned}
 (K+2)(3)^2 - K(3) + 6 &= 0 \\
 \Rightarrow 9K + 18 - 3K + 6 &= 0 \\
 \Rightarrow 6K &= -24 \\
 \Rightarrow K &= -4
 \end{aligned}$$

Ans.

Now, putting $K = -4$ in equation (i), we get

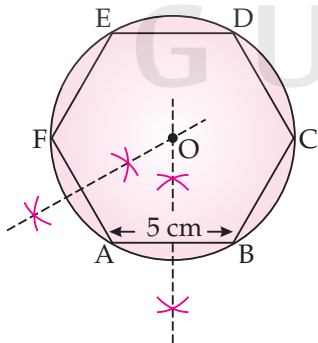
$$\begin{aligned}
 \Rightarrow (-4+2)x^2 - (-4)x + 6 &= 0 \\
 \Rightarrow -2x^2 + 4x + 6 &= 0 \\
 \Rightarrow x^2 - 2x - 3 &= 0 \\
 \Rightarrow x^2 - 3x + x - 3 &= 0 \\
 \Rightarrow x(x-3) + 1(x-3) &= 0 \\
 \Rightarrow (x-3)(x+1) &= 0 \\
 \Rightarrow x = 3 \text{ or } x = -1
 \end{aligned}$$

 \therefore The other root is -1 .

Ans.

(c) Steps of Construction :

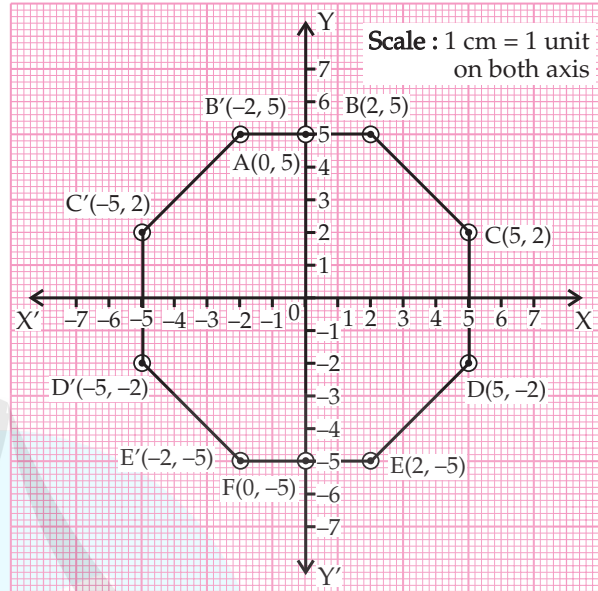
1. Construct a regular hexagon ABCDEF with each side 5 cm.
2. Draw the perpendicular bisectors of sides AB and AF which intersect each other at point O.
3. With O as centre and OA as radius, draw a circle which will pass through all the vertices of the regular hexagon.



SECTION—B

Solution 5.

(a) (i) Plot the given points on the graph as shown below :



(ii) and (iii)

Reflection of B (2, 5) on the Y-axis = (-2, 5) i.e., B'

Reflection of C (5, 2) on the Y-axis = (-5, 2) i.e., C'

Reflection of D (5, -2) on the Y-axis = (-5, -2) i.e., D'

Reflection of E (2, -5) on the Y-axis = (-2, -5) i.e., E'

E'

(iv) Figure formed by BCDEE'D'C'B' is regular Octagon.

Solution 6.

(a) Given, a, b, c are in continued proportion.

$$\therefore a : b = b : c$$

$$\Rightarrow \frac{a}{b} = \frac{b}{c}$$

$$\Rightarrow b^2 = ac$$

$$\begin{aligned}
 \text{L.H.S.} &= (a+b+c)(a-b+c) \\
 &= a^2 - ab + ac + ab - b^2 + bc + ac - bc + c^2 \\
 &= a^2 + 2ac - b^2 + c^2 \\
 &= a^2 + 2b^2 - b^2 + c^2 \quad (\because ac = b^2) \\
 &= a^2 + b^2 + c^2 = \text{R.H.S.}
 \end{aligned}$$

Hence Proved.

(b) (i) Coordinates of A are (4, 0)

(iii) Let the required ratio be $K : 1$ and the point Q be $(0, y)$

$$\text{Here, } x_1 = 4, y_1 = 0, x_2 = -2, y_2 = -4$$

$$\text{We have, } x = \frac{Kx_2 + x_1}{K+1}$$

$$\Rightarrow 0 = \frac{K(-2) + 4}{K+1}$$

$$\Rightarrow 0 = -2K + 4$$

$$\Rightarrow 2K = 4$$

$$\Rightarrow K = 2$$

$$\Rightarrow K : 1 = 2 : 1$$

Ans.

(iv) Equation of the line AC,

where, $x_1 = 4, y_1 = 0,$

$$x_2 = -2, y_2 = -4$$

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$

$$\Rightarrow y - 0 = \frac{-4 - 0}{-2 - 4} (x - 4)$$

$$\Rightarrow y = \frac{2}{3} (x - 4)$$

$$\Rightarrow 3y = 2x - 8$$

$$\Rightarrow 2x - 3y = 8$$

Ans.

(c)

| Class Interval | Frequency (f) | Mean value (x) | fx |
|----------------|------------------|----------------|--------------------|
| 0 - 10 | 8 | 5 | 40 |
| 10 - 20 | 5 | 15 | 75 |
| 20 - 30 | 12 | 25 | 300 |
| 30 - 40 | 35 | 35 | 1225 |
| 40 - 50 | 24 | 45 | 1080 |
| 50 - 60 | 16 | 55 | 880 |
| | $\Sigma f = 100$ | | $\Sigma fx = 3600$ |

$$\therefore \text{Mean} = \frac{\Sigma fx}{\Sigma f} = \frac{3600}{100} = 36$$

The mean of the given distribution is 36.

Ans.

Solution 7.

(a) Volume of solid sphere of radius 2 cm

$$= \frac{4}{3} \pi (2)^3 = \frac{32}{3} \pi \text{ cm}^3$$

Volume of solid sphere of radius 4 cm

$$= \frac{4}{3} \pi (4)^3$$

$$= \frac{256}{3} \pi \text{ cm}^3$$

$$\text{Total Volume} = \left(\frac{32}{3} \pi + \frac{256}{3} \pi \right) \text{ cm}^3$$

$$= 96 \pi \text{ cm}^3$$

 \therefore Height of cone = 8 cm \therefore Volume of cone formed

$$= \frac{1}{3} \pi r^2 h$$

$$\Rightarrow 96 \pi = \frac{1}{3} \pi r^2 \times 8$$

$$\Rightarrow r^2 = \frac{96 \times 3}{8}$$

$$\Rightarrow r = \sqrt{36}$$

$$\Rightarrow r = 6 \text{ cm}$$

Hence, the radius of the cone formed is 6 cm.

Ans.

(b) Let $f(x) = ax^3 + 3x^2 - 9$ and $g(x) = 2x^3 + 4x + a$.

Since, the given polynomials leave the same remainder when divided by $x + 3$, so put $x + 3 = 0$
 $\Rightarrow x = -3$ in $f(x)$ and $g(x)$.

By Remainder theorem,

$$f(-3) = g(-3)$$

$$\Rightarrow a(-3)^3 + 3(-3)^2 - 9 = 2(-3)^3 + 4(-3) + a$$

$$\Rightarrow -27a + 27 - 9 = -54 - 12 + a$$

$$\Rightarrow -27a - a = -66 - 18$$

$$\Rightarrow -28a = -84$$

$$\Rightarrow a = 3.$$

Ans.

(c)

$$\text{L.H.S.} = \frac{\sin \theta}{1 - \cot \theta} + \frac{\cos \theta}{1 - \tan \theta}$$

$$= \frac{\sin \theta}{1 - \frac{\cos \theta}{\sin \theta}} + \frac{\cos \theta}{1 - \frac{\sin \theta}{\cos \theta}}$$

$$\left(\because \tan \theta = \frac{\sin \theta}{\cos \theta}, \cot \theta = \frac{\cos \theta}{\sin \theta} \right)$$

$$\Rightarrow = \frac{\sin \theta}{\frac{\sin \theta - \cos \theta}{\sin \theta}} + \frac{\cos \theta}{\frac{\cos \theta - \sin \theta}{\cos \theta}}$$

$$= \frac{\sin^2 \theta}{\sin \theta - \cos \theta} + \frac{\cos^2 \theta}{\cos \theta - \sin \theta}$$

$$= \frac{\sin^2 \theta}{\sin \theta - \cos \theta} - \frac{\cos^2 \theta}{\sin \theta - \cos \theta}$$

$$= \frac{\sin^2 \theta - \cos^2 \theta}{\sin \theta - \cos \theta}$$

$$\left[\because a^2 - b^2 = (a - b)(a + b) \right]$$

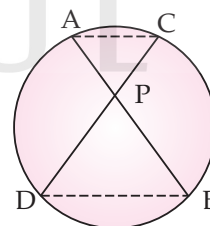
$$= \frac{(\sin \theta + \cos \theta)(\sin \theta - \cos \theta)}{(\sin \theta - \cos \theta)}$$

$$= (\cos \theta + \sin \theta) = \text{R.H.S.}$$

Hence Proved.

Solution 8.

(a) Given : Chord AB and CD of a circle intersect each other at point P inside the circle.

To prove : $AP \times PB = CP \times PD$

Construction : Join AC and BD

Proof : In ΔAPC and ΔBPD

$$\angle A = \angle D$$

(Angles of same segment)

$$\angle C = \angle B$$

(Angles of same segment)

$$\begin{aligned} \therefore \quad \Delta APC &\sim \Delta DPB \quad (\text{By AA axiom}) \\ \Rightarrow \quad \frac{AP}{PD} &= \frac{CP}{PB} \\ (\text{corresponding sides of similar triangles}) \\ \Rightarrow \quad AP \times PB &= CP \times PD. \quad \text{Hence Proved.} \end{aligned}$$

(b) Given,

Number of white balls = 5

Number of red balls = 6

Number of green balls = 9

$$\therefore \quad \text{Total number of outcomes} = (5 + 6 + 9) = 20$$

$$(i) \quad P(\text{getting a green ball}) = \frac{9}{20} \quad \text{Ans.}$$

$$(ii) \quad P(\text{getting a white or red ball}) = \frac{5}{20} + \frac{6}{20} = \frac{11}{20}$$

$$[\because P(A \cup B) = P(A) + P(B)]$$

$$(iii) \quad P(\text{getting neither a green ball nor a white ball}) = P(\text{getting a red ball}) = \frac{6}{20} = \frac{3}{10} \quad \text{Ans.}$$

(c) Given, sum invested = ₹ 9,600

N.V. of each share = ₹ 100

M.V. of each share = ₹ (100 + 20) = ₹ 120

rate of dividend = 8%

$$(i) \quad \text{Number of shares bought} = \frac{9,600}{120} = 80 \quad \text{Ans.}$$

$$(ii) \quad \begin{aligned} \text{Selling price of one share} &= ₹ 160 \\ \text{Selling price of 80 shares} &= ₹ 80 \times 160 \\ &= ₹ 12,800 \end{aligned}$$

Hence, Rohit's sales produced

$$= ₹ 12,800$$

Ans.

$$(iii) \quad \begin{aligned} \text{Market value of new share} &= ₹ 40 \\ \text{Investment} &= ₹ 12,800 \end{aligned}$$

$$\begin{aligned} \text{New number of shares bought} &= \frac{12,800}{40} \\ &= 320 \end{aligned}$$

Ans. (b)

(iv) Dividend from original shares

$$= \text{Number of shares} \times \text{Rate of dividend} \times \text{Face value of one share}$$

$$= ₹ 80 \times \frac{8}{100} \times 100$$

$$= ₹ 640$$

Annual dividend from new shares

$$= \text{Number of shares} \times \text{Rate of dividend} \times \text{Face value of one share}$$

$$= ₹ 320 \times \frac{10}{100} \times 50$$

$$= ₹ 1,600$$

Change in two dividend

$$= ₹ (1,600 - 640)$$

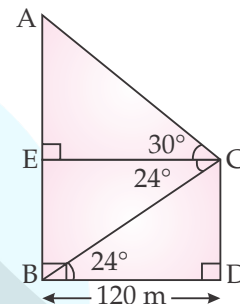
$$= ₹ 960$$

Dividend increase = ₹ 960.

Ans.

Solution 9.

(a) Let, AB and CD be towers and BD = 120 m.

In right angled ΔBDC 

$$\tan 24^\circ = \frac{CD}{BD}$$

$$0.4452 = \frac{CD}{120}$$

(using trigonometric table)

$$CD = 53.424 \text{ m}$$

In right angled ΔAEC

$$\tan 30^\circ = \frac{AE}{EC} = \frac{AE}{BD} \quad (\because EC = BD)$$

$$\frac{1}{\sqrt{3}} = \frac{AE}{120}$$

$$AE = \frac{120}{\sqrt{3}}$$

$$AE = 69.284 \text{ m}$$

$$\therefore AB = AE + EB \quad (\because EB = CD)$$

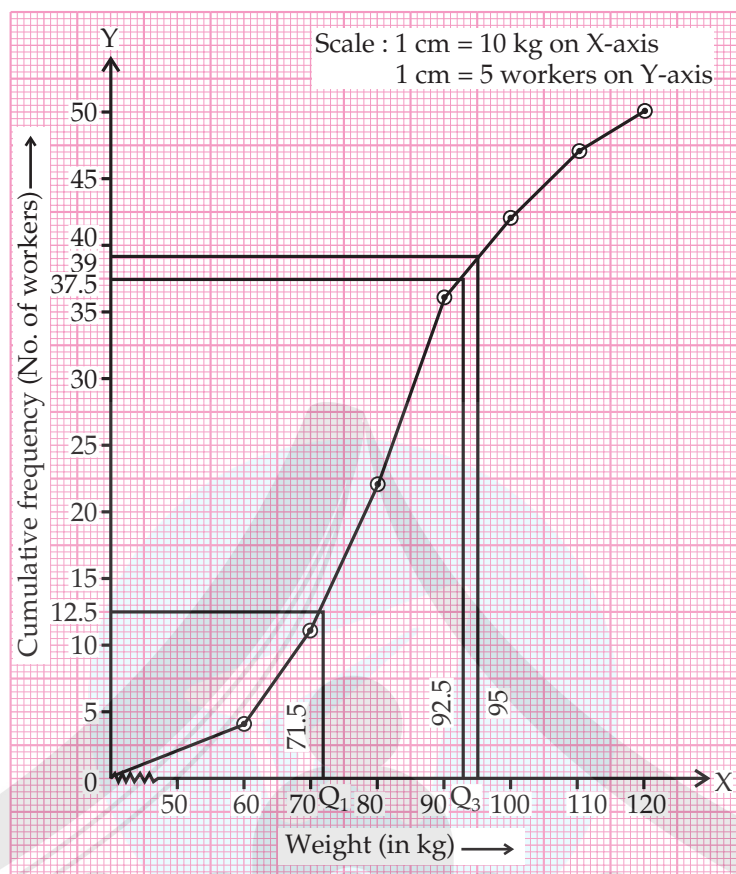
$$= 69.284 + 53.424$$

$$= 122.708 \text{ m}$$

Hence, the height of the towers are 53.424 m and 122.708 m.

Ans.

| Weight (in kg) | No. of workers (f) | Cumulative frequency (c.f.) |
|----------------|--------------------|-----------------------------|
| 50-60 | 4 | 4 |
| 60-70 | 7 | 11 |
| 70-80 | 11 | 22 |
| 80-90 | 14 | 36 |
| 90-100 | 6 | 42 |
| 100-110 | 5 | 47 |
| 110-120 | 3 | 50 |
| | $N = \sum f = 50$ | |



Note : On Y-axis instead of 2 cm = 5 workers, we have taken 1 cm = 5 workers and on X-axis instead of 2 cm = 10 kg, we have taken 1 cm = 10 kg.

From graph,

(i) Upper quartile range

$$\begin{aligned}(Q_3) &= \left(\frac{3N}{4}\right)^{\text{th}} \text{ term} \\ &= \left(\frac{3 \times 50}{4}\right)^{\text{th}} \text{ term} \\ &= 37.5^{\text{th}} \text{ term} = 92.5 \text{ kg}\end{aligned}$$

Lower quartile range

$$\begin{aligned}(Q_1) &= \left(\frac{N}{4}\right)^{\text{th}} \text{ term} \\ &= \left(\frac{50}{4}\right)^{\text{th}} \text{ term} \\ &= 12.5^{\text{th}} \text{ term} \\ &= 71.5 \text{ kg.}\end{aligned}$$

Ans.

(ii) From the graph, Number of workers who are under-weight i.e., less than 95 are 39.

No. of workers who are over-weight are $(50 - 39) = 11$.

Ans.

Solution 10.

(b) Given,

and

\therefore

and

\therefore

$$A = \begin{bmatrix} 3 & 7 \\ 2 & 4 \end{bmatrix}, B = \begin{bmatrix} 0 & 2 \\ 5 & 3 \end{bmatrix}$$

$$C = \begin{bmatrix} 1 & -5 \\ -4 & 6 \end{bmatrix}$$

$$\begin{aligned}AB &= \begin{bmatrix} 3 & 7 \\ 2 & 4 \end{bmatrix} \begin{bmatrix} 0 & 2 \\ 5 & 3 \end{bmatrix} \\ &= \begin{bmatrix} 0+35 & 6+21 \\ 0+20 & 4+12 \end{bmatrix} = \begin{bmatrix} 35 & 27 \\ 20 & 16 \end{bmatrix}\end{aligned}$$

$$5C = \begin{bmatrix} 5 & -25 \\ -20 & 30 \end{bmatrix}$$

$$\begin{aligned}AB - 5C &= \begin{bmatrix} 35 & 27 \\ 20 & 16 \end{bmatrix} - \begin{bmatrix} 5 & -25 \\ -20 & 30 \end{bmatrix} \\ &= \begin{bmatrix} 35-5 & 27+25 \\ 20+20 & 16-30 \end{bmatrix} \\ &= \begin{bmatrix} 30 & 52 \\ 40 & -14 \end{bmatrix}\end{aligned}$$

Ans.

(c) (i) Given : ΔABC , right angled at B and DE perpendicular to AC.

To prove : $\Delta ADE \sim \Delta ACB$.

In ΔADE and ΔACB ,

$$\angle ABC = \angle AED = 90^\circ$$

$$\angle A = \angle A \quad (\text{Common})$$

\therefore By AA axiom, $\Delta ADE \sim \Delta ACB$.

(ii) Given: AC = 13 cm, BC = 5 cm and AE = 4 cm

In right angled triangle ABC

$$AB^2 + BC^2 = AC^2$$

(by applying Pythagoras Theorem)

$$AB^2 + (5)^2 = (13)^2$$

$$AB = \sqrt{169 - 25}$$

$$= 12 \text{ cm}$$

Since, the $\triangle ADE$ and $\triangle ACB$ are similar, then their corresponding sides will be proportional.

$$\therefore \frac{AC}{AD} = \frac{AB}{AE} \Rightarrow \frac{13}{AD} = \frac{12}{4}$$

$$\Rightarrow AD = \frac{13 \times 4}{12} = 4.33 \text{ cm}$$

$$\text{and } \frac{BC}{DE} = \frac{AB}{AE} \Rightarrow \frac{5}{DE} = \frac{12}{4}$$

$$DE = \frac{5 \times 4}{12} = 1.67 \text{ cm.} \quad \text{Ans.}$$

(iii) In similar triangles, area of triangles are proportional to the square to the corresponding sides.

$$\frac{\text{Ar of } (\triangle ABC)}{\text{Ar of } (\triangle ADE)} = \frac{AB^2}{AE^2} = \frac{12^2}{4^2} = \frac{144}{16} = \frac{9}{1}$$

$$\Rightarrow \frac{\text{Ar of } (\triangle ADE) + \text{Ar (quadrilateral BCED)}}{\text{Ar of } (\triangle ADE)} = 9$$

$$\Rightarrow 1 + \frac{\text{Ar of (quadrilateral BCED)}}{\text{Ar of } (\triangle ADE)} = 9$$

$$\Rightarrow \frac{\text{Ar of (quadrilateral BCED)}}{\text{Ar of } (\triangle ADE)} = 8$$

$$\Rightarrow \frac{\text{Ar of } (\triangle ADE)}{\text{Ar of (quadrilateral BCED)}} = \frac{1}{8} \quad \text{Ans.}$$

Solution 11.

(a) Let, the two natural numbers be x and $8 - x$.

$$\text{Given, } \frac{1}{x} - \frac{1}{8-x} = \frac{2}{15}$$

$$\Rightarrow \frac{8-x-x}{x(8-x)} = \frac{2}{15}$$

$$(8-2x) 15 = 16x - 2x^2$$

$$120 - 30x = 16x - 2x^2$$

$$2x^2 - 46x + 120 = 0$$

$$x^2 - 23x + 60 = 0$$

On splitting the middle term, we get

$$x^2 - 20x - 3x + 60 = 0$$

$$x(x-20) - 3(x-20) = 0$$

$$(x-3)(x-20) = 0$$

$$x = 3 \text{ or } x = 20 \text{ (neglect it)}$$

(\because Sum of two natural numbers is 8)

Thus, one number = 3 and other number

$$= 8 - 3 = 5$$

\therefore The natural numbers are 3 and 5. Ans.

(b) Given, $\frac{x^3 + 12x}{6x^2 + 8} = \frac{y^3 + 27y}{9y^2 + 27}$

Applying componendo and dividendo, we get

$$\frac{x^3 + 12x + 6x^2 + 8}{x^3 + 12x - 6x^2 - 8} = \frac{y^3 + 27y + 9y^2 + 27}{y^3 + 27y - 9y^2 - 27}$$

$$[\because (a+b)^3 = a^3 + 3a^2b + 3ab^2 + b^3]$$

$$(a-b)^3 = a^3 + 3ab^2 - 3a^2b - b^3]$$

$$\Rightarrow \frac{(x+2)^3}{(x-2)^3} = \frac{(y+3)^3}{(y-3)^3}$$

Taking cube root on both the sides

$$\Rightarrow \frac{x+2}{x-2} = \frac{y+3}{y-3}$$

Again using componendo and dividendo, we get

$$\frac{x+2+x-2}{x+2-x+2} = \frac{y+3+y-3}{y+3-y+3}$$

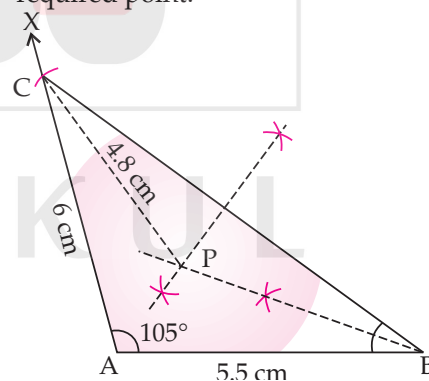
$$\frac{2x}{4} = \frac{2y}{6}$$

$$\frac{x}{y} = \frac{2}{3}$$

Hence, $x : y = 2 : 3$. Ans.

(c) Steps of construction:

1. Draw a line AB = 5.5 cm.
2. Now, from point A draw $\angle XAB = 105^\circ$ using compass.
3. Taking A as centre and 6 cm as radius draw arc on AX. Mark this point as C.
4. Join BC.
5. Draw bisector of $\angle ABC$ and perpendicular bisector of BC, both intersecting at P. P is the required point.



Reason :

Since,

(i) P is on bisector of $\angle ABC$, therefore, P is equidistant from BA and BC. Ans.

(ii) P is on perpendicular bisector of BC, therefore, P is equidistant from B and C. Ans.

(iii) Length of PC is 4.8 cm. Ans.

••

QUESTIONS

SECTION—A (40 Marks)

(Attempt all questions from this Section)

Question 1.

- (a) Ranbir borrows ₹ 20,000 at 12% per annum compound interest. If he repays ₹ 8,400 at the end of the first year and ₹ 9,680 at the end of the second year, find the amount of loan outstanding at the beginning of the third year. **[3]**

- (b) Find the values of x , which satisfy the inequation $-2 \frac{5}{6} < \frac{1}{2} - \frac{2x}{3} \leq 2$, $x \in W$. Show or represent the solution set on the number line, where W is the set of whole numbers. **[3]**

- (c) A die has 6 faces marked by the given numbers as shown below :



The die is thrown once. What is the probability of getting

- (i) a positive integer.
(ii) an integer greater than -3 .
(iii) the smallest integer. **[4]**

Question 2.

- (a) Find x, y if $\begin{bmatrix} -2 & 0 \\ 3 & 1 \end{bmatrix} \begin{bmatrix} -1 \\ 2x \end{bmatrix} + \begin{bmatrix} -2 \\ 1 \end{bmatrix} = 2 \begin{bmatrix} y \\ 3 \end{bmatrix}$. **[3]**

- (b) Shahrugh opened a Recurring Deposit Account in a bank and deposited ₹ 800 per month for $1 \frac{1}{2}$ years. If he received ₹ 15,084 at the time of maturity, find the rate of interest per annum. **[3]**

- (c) Calculate the ratio in which the line joining $A(-4, 2)$ and $B(3, 6)$ is divided by point $P(x, 3)$. Also, find (i) x

- (ii) Length of AP . **[4]**

Question 3.

- (a) Without using trigonometric tables, evaluate. **[3]**
 $\sin^2 34^\circ + \sin^2 56^\circ + 2 \tan 18^\circ \tan 72^\circ - \cot^2 30^\circ$

- (b) Using the Remainder and Factor Theorem, factorise the following polynomial :

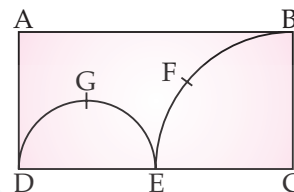
$$x^3 + 10x^2 - 37x + 26.$$

[3]

- (c) In the figure given below, $ABCD$ is a rectangle. $AB = 14$ cm, $BC = 7$ cm. From the rectangle, a quarter circle $BFEC$ and a semicircle DGE are removed.

** Answer is not given due to change in the present syllabus.

Calculate the area of the remaining piece of the rectangle. **[4]**
(Take $\pi = \frac{22}{7}$)

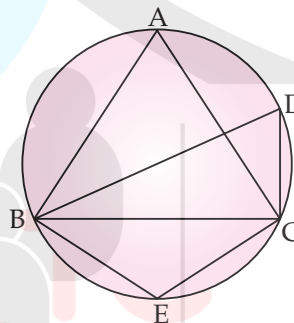


Question 4.

- (a) The numbers 6, 8, 10, 12, 13, and x are arranged in an ascending order. If the mean of the observations is equal to the median, find the value of x . **[3]**

- (b) In the given figure, $\angle DBC = 58^\circ$, BD is diameter of the circle. Calculate :

- (i) $\angle BDC$ (ii) $\angle BEC$ (iii) $\angle BAC$ **[3]**



- (c) Use graph paper to answer the following questions. (Take 2 cm = 1 unit on both axis).

- (i) Plot the points $A(-4, 2)$ and $B(2, 4)$.
(ii) A' is the image of A when reflected in the Y -axis. Plot it on the graph paper and write the coordinates of A' .
(iii) B' is the image of B when reflected in the line AA' . Write the coordinates of B' .
(iv) Write the geometric name of the figure $ABA'B'$.
(v) Name a line of symmetry of the figure formed. **[4]**

SECTION—B (40 Marks)

(Attempt any four questions from this Section)

Question 5.

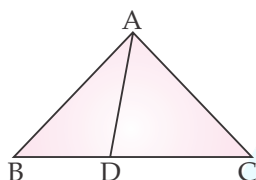
- (a) A shopkeeper bought a washing machine at a discount of 20% from a wholesaler, the printed price of the washing machine being ₹ 18,000. The shopkeeper sells it to a consumer at a discount of 10% on the printed price. If the rate of sales tax is 8%, find :

- (i) the VAT paid by the shopkeeper.
 (ii) the total amount that the consumer pays for the washing machine.** [3]

(b) If $\frac{x^2+y^2}{x^2-y^2} = \frac{17}{8}$, using the properties of proportion find the value of:

- (i) $x : y$.
 (ii) $\frac{x^3+y^3}{x^3-y^3}$. [3]

(c) In $\triangle ABC$, $\angle ABC = \angle DAC$, $AB = 8\text{ cm}$, $AC = 4\text{ cm}$, $AD = 5\text{ cm}$.



- (i) Prove that $\triangle ACD \sim \triangle BCA$.
 (ii) Find the length of BC and CD.
 (iii) Find area of $\triangle ACD$: area of $\triangle ABC$. [4]

Question 6.

- (a) Find the value of 'a' for which the following points A (a, 3), B (2, 1) and C (5, a) are collinear. Hence, find the equation of the line. [3]
 (b) Salman invests a sum of money in ₹ 50 shares, paying 15% dividend quoted at 20% premium. If his annual dividend is ₹ 600, calculate :
 (i) the number of shares he bought.
 (ii) his total investment.
 (iii) the rate of return on his investment. [3]
 (c) The surface area of a solid metallic sphere is 2464 cm^2 . It is melted and recast into solid right circular cones of radius 3.5 cm and height 7 cm. Calculate :
 (i) the radius of the sphere.
 (ii) the number of cones formed. (Take $\pi = 22/7$) [4]

Question 7.

- (a) Calculate the mean of the distribution given below using the short cut method.

| Marks | 11–20 | 21–30 | 31–40 | 41–50 | 51–60 | 61–70 | 71–80 |
|-----------------|-------|-------|-------|-------|-------|-------|-------|
| No. of students | 2 | 6 | 10 | 12 | 9 | 7 | 4 |

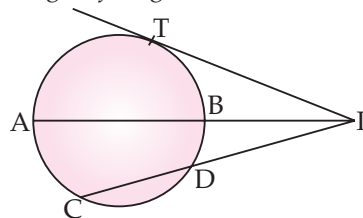
[3]

- (b) In the figure given below, diameter AB and chord CD of a circle meet at P. PT is a tangent to the circle at T.

| Date | Particulars | Amount withdrawn (₹) | Amount deposited (₹) | Balance (₹) |
|----------|-------------|----------------------|----------------------|-------------|
| 3/4/2006 | B/F | | | 4000-00 |
| 5/4/2006 | By Cash | | 2000-00 | 6000-00 |

$CD = 7.8\text{ cm}$, $PD = 5\text{ cm}$, $PB = 4\text{ cm}$. Find :

- (i) AB.
 (ii) The length of tangent PT. [3]



(c) Let $A = \begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix}$, $B = \begin{bmatrix} 4 & 1 \\ -3 & -2 \end{bmatrix}$ and $C = \begin{bmatrix} -3 & 2 \\ -1 & 4 \end{bmatrix}$
 Find $A^2 + AC - 5B$. [4]

Question 8.

- (a) The compound interest, calculated yearly, on a certain sum of money for the second year is ₹ 1320 and for the third year is ₹ 1452. Calculate the rate of interest and the original sum of money. ** [3]
 (b) Construct a $\triangle ABC$ with $BC = 6.5\text{ cm}$, $AB = 5.5\text{ cm}$, $AC = 5\text{ cm}$. Construct the incircle of the triangle. Measure and record the radius of the incircle. [3]
 (c) The daily pocket expenses of 200 students in a school are given below : (Use a graph paper for this question.)

| Pocket expenses (in ₹) | Number of students (frequency) |
|------------------------|--------------------------------|
| 0–5 | 10 |
| 5–10 | 14 |
| 10–15 | 28 |
| 15–20 | 42 |
| 20–25 | 50 |
| 25–30 | 30 |
| 30–35 | 14 |
| 35–40 | 12 |

Draw a histogram representing the above distribution and estimate the mode from the graph. [4]

Question 9.

- (a) If $(x-9) : (3x+6)$ is the duplicate ratio of 4 : 9, find the value of x using properties of proportion. [3]
 (b) Solve for x using the quadratic formula. Write your answer correct to two significant figures.

$$(x-1)^2 - 3x + 4 = 0. \quad [3]$$

- (c) A page from the savings bank account of Priyanka is given below :

** Answer is not given due to change in the present syllabus.

| | | | | |
|-----------|-----------|---------|---------|----------|
| 18/4/2006 | By Cheque | | 6000.00 | 12000.00 |
| 25/5/2006 | To Cheque | 5000.00 | | 7000.00 |
| 30/5/2006 | By Cash | | 3000.00 | 10000.00 |
| 20/7/2006 | By Self | 4000.00 | | 6000.00 |
| 10/9/2006 | By Cash | | 2000.00 | 8000.00 |
| 19/9/2006 | To Cheque | 1000.00 | | 7000.00 |

If the interest earned by Priyanka for the period ending September, 2006 is ₹ 175, find the rate of interest. ** [4]

of its digits is 6. If 9 is added to the number, the digits interchange their places. Find the number. [4]

Question 10.

(a) A two digit positive number is such that the product

(b) The marks obtained by 100 students in a Mathematics test are given below :

| Marks | 0—10 | 10—20 | 20—30 | 30—40 | 40—50 | 50—60 | 60—70 | 70—80 | 80—90 | 90—100 |
|-----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| No. of Students | 3 | 7 | 12 | 17 | 23 | 14 | 9 | 6 | 5 | 4 |

Draw an ogive for the given distribution on a graph sheet.

(Use a scale of 2 cm = 10 units on both axis).

Use the ogive to estimate the :

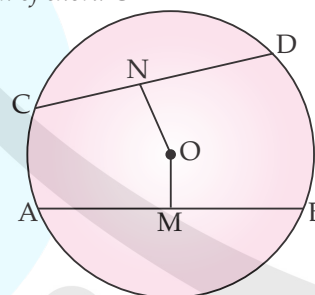
(i) median.

(ii) lower quartile.

(iii) number of students who obtained more than 85% marks in the test.

(iv) number of students who did not pass in the test if the pass percentage was 35. [6]

(ii) length of chord CD. [3]



Question 11.

(a) In the figure given below, O is the centre of the circle. AB and CD are two chords of the circle. OM is perpendicular to AB and ON is perpendicular to CD. AB = 24 cm, OM = 5 cm, ON = 12 cm. Find the : **

(i) radius of the circle.

(b) Prove the identity

$$(\sin \theta + \cos \theta)(\tan \theta + \cot \theta) = \sec \theta + \operatorname{cosec} \theta. \quad [3]$$

(c) An aeroplane at an altitude of 250 m observes the angle of depression of two boats on the opposite banks of a river to be 45° and 60° respectively. Find the width of the river. Write the answer correct to the nearest whole number. [4]

ANSWERS

SECTION—A

Solution 1.

$$(b) -2\frac{5}{6} < \frac{1}{2} - \frac{2x}{3} \leq 2$$

$$\text{Taking, } -2\frac{5}{6} < \frac{1}{2} - \frac{2x}{3}$$

$$\Rightarrow -\frac{17}{6} < \frac{1}{2} - \frac{2x}{3}$$

$$\Rightarrow -\frac{17}{6} - \frac{1}{2} < -\frac{2x}{3}$$

$$\Rightarrow -\frac{17-3}{6} < -\frac{2x}{3}$$

$$\Rightarrow -\frac{20}{6} < -\frac{2x}{3} \Rightarrow \frac{10}{3} > \frac{2x}{3}$$

$$5 > x \Rightarrow x < 5 \quad \dots(i)$$

$$\text{Now, taking } \frac{1}{2} - \frac{2x}{3} \leq 2$$

** Answer is not given due to change in the present syllabus.

$$\Rightarrow -\frac{2x}{3} \leq 2 - \frac{1}{2}$$

$$\Rightarrow -\frac{2x}{3} \leq \frac{3}{2}$$

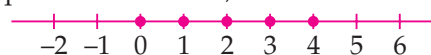
$$\Rightarrow -x \leq \frac{9}{4} \Rightarrow x \geq -\frac{9}{4} \quad \dots(ii)$$

From (i) and (ii), we get

$$-\frac{9}{4} \leq x < 5 \Rightarrow -2\frac{1}{4} \leq x < 5$$

But as $x \in W$ the solution set is, $\{0, 1, 2, 3, 4\}$.

Required number line,



Ans.

(c)

$$\begin{matrix} 1 & 2 & 3 & -1 & -2 & -3 \end{matrix}$$

Total number of outcomes = 6,

$$n(S) = 6$$

(i) A positive integer :

Favourable outcomes

$$n(P) = \{1, 2, 3\} = 3$$

$$\therefore Q(P) = \frac{n(P)}{n(S)} = \frac{3}{6} = \frac{1}{2}$$

Ans.

(ii) An integer greater than -3 :

Favourable outcomes

$$n(g) = \{1, 2, 3, -1, -2\} = 5$$

$$\therefore P(g) = \frac{n(g)}{n(S)} = \frac{5}{6}$$

Ans.

(iii) The smallest integer :

Favourable outcomes,

$$n(I) = \{-3\}$$

$$\therefore P(I) = \frac{n(I)}{n(S)} = \frac{1}{6}$$

Ans.

y-coordinate of P

$$y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$$

$$3 = \frac{6m_1 + 2m_2}{m_1 + m_2}$$

$$\Rightarrow 3m_1 + 3m_2 = 6m_1 + 2m_2$$

$$\Rightarrow 3m_1 - 6m_1 = 2m_2 - 3m_2$$

$$\Rightarrow -3m_1 = -m_2$$

$$\Rightarrow 3m_1 = m_2$$

$$\Rightarrow \frac{m_1}{m_2} = \frac{1}{3}$$

$$\Rightarrow m_1 : m_2 = 1 : 3$$

Ans.

(i) Now,

$$x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$$

$$x = \frac{1 \times 3 + 3(-4)}{1 + 3}$$

$$= \frac{3 - 12}{4} = -\frac{9}{4}$$

Ans.

Solution 2.

$$(a) \text{ Given, } \begin{bmatrix} -2 & 0 \\ 3 & 1 \end{bmatrix} \begin{bmatrix} -1 \\ 2x \end{bmatrix} + 3 \begin{bmatrix} -2 \\ 1 \end{bmatrix} = 2 \begin{bmatrix} y \\ 3 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 2+0 \\ -3+2x \end{bmatrix} + \begin{bmatrix} -6 \\ 3 \end{bmatrix} = \begin{bmatrix} 2y \\ 6 \end{bmatrix}$$

$$\Rightarrow \begin{bmatrix} 2-6 \\ -3+2x+3 \end{bmatrix} = \begin{bmatrix} 2y \\ 6 \end{bmatrix}$$

$$\begin{bmatrix} -4 \\ 2x \end{bmatrix} = \begin{bmatrix} 2y \\ 6 \end{bmatrix}$$

On comparing, we get

$$\Rightarrow 2y = -4, 2x = 6$$

$$\Rightarrow y = -2, x = 3$$

Thus required values are $x = 3, y = -2$.

Ans.

(b) Given, P = ₹ 800 per month, $n = 1\frac{1}{2}$ years
= 18 month.

Maturity value = ₹ 15,084

As we know,

$$I = \frac{Pn(n+1)r}{2 \times 12 \times 100}$$

$$\text{M.V.} = P \times n + I$$

$$\text{Maturity value} = P \times n + \frac{Pn(n+1)r}{2 \times 12 \times 100}$$

$$15,084 = 800 \times 18 + \frac{800 \times 18 \times 19 \times r}{2,400}$$

$$15,084 - 14,400 = 6 \times 19r$$

$$\frac{684}{6 \times 19} = r$$

$$\therefore r = 6\% \text{ p.a.}$$

(c) Let the ratio in which P divides AB be $m_1 : m_2$. \therefore

$$\begin{array}{ccc} \bullet & \bullet & \bullet \\ A(-4, 2) & P(x, 3) & B(3, 6) \\ (x_1, y_1) & (x, y) & (x_2, y_2) \end{array}$$

Solution 3.

(b) Given, $f(x) = x^3 + 10x^2 - 37x + 26$

$$f(1) = 1 + 10 - 37 + 26 = 37 - 37 = 0$$

Thus, $(x - 1)$ is a factor of $f(x)$.

$$\begin{array}{r} x-1 \overline{) x^3 + 10x^2 - 37x + 26} \\ \underline{x^3 - x^2} \\ 11x^2 - 37x \\ \underline{11x^2 - 11x} \\ -26x + 26 \\ \underline{-26x + 26} \\ 0 \end{array}$$

$$11x^2 - 37x$$

$$11x^2 - 11x$$

$$-26x + 26$$

$$-26x + 26$$

$$+ \quad -$$

$$0$$

$$\text{Thus, } f(x) = (x - 1)(x^2 + 11x - 26)$$

$$= (x - 1)(x^2 + 13x - 2x - 26)$$

$$= (x - 1)[x(x + 13) - 2(x + 13)]$$

$$= (x - 1)(x - 2)(x + 13)$$

Thus, required factors are $(x - 1)$, $(x - 2)$ and $(x + 13)$.

Ans.

Solution 4.

(a) The numbers are 6, 8, 10, 12, 13 and x

$$n = 6$$

$$\text{Mean} = \frac{6 + 8 + 10 + 12 + 13 + x}{6}$$

$$\text{Mean} = \frac{49 + x}{6}$$

...(i)

For Median, $n = 6$ (even)

$$\therefore \text{Median} = \frac{\left(\frac{n}{2}\right)^{\text{th}} \text{ term} + \left(\frac{n}{2} + 1\right)^{\text{th}} \text{ term}}{2}$$

$$\begin{aligned} \text{Median} &= \frac{3^{\text{rd}} \text{ term} + 4^{\text{th}} \text{ term}}{2} \\ &= \frac{10 + 12}{2} \\ &= \frac{22}{2} = 11 \end{aligned}$$

...(ii)

According to the question,

$$\text{Median} = \text{Mean}$$

$$\therefore 11 = \frac{49 + x}{6}$$

$$\Rightarrow x = 66 - 49$$

$$\Rightarrow x = 17.$$

The value of x is 17.

(b) Given, $\angle DBC = 58^\circ$, BD is the diameter.

$$\therefore \angle BCD = 90^\circ$$

(Angle in a semi-circle)

(i) Now, in $\triangle BDC$

$$\angle BDC + 90^\circ + 58^\circ = 180^\circ$$

(sum of the angles of a triangle)

$$\begin{aligned} \therefore \angle BDC &= 180^\circ - (90^\circ + 58^\circ) \\ &= 32^\circ \end{aligned}$$

Ans.

(ii) $BECD$ is a cyclic quadrilateral.

$$\therefore \angle BEC + \angle BDC = 180^\circ$$

(Opp. angles of a cyclic quadrilateral)

$$\begin{aligned} \therefore \angle BEC &= 180^\circ - \angle BDC \\ &= 180^\circ - 32^\circ = 148^\circ \end{aligned}$$

Ans.

$$\begin{aligned} \text{(iii)} \quad \angle BAC &= \angle BDC \\ &= 32^\circ \end{aligned}$$

(Angles in the same segment of a circle are equal)

Ans.

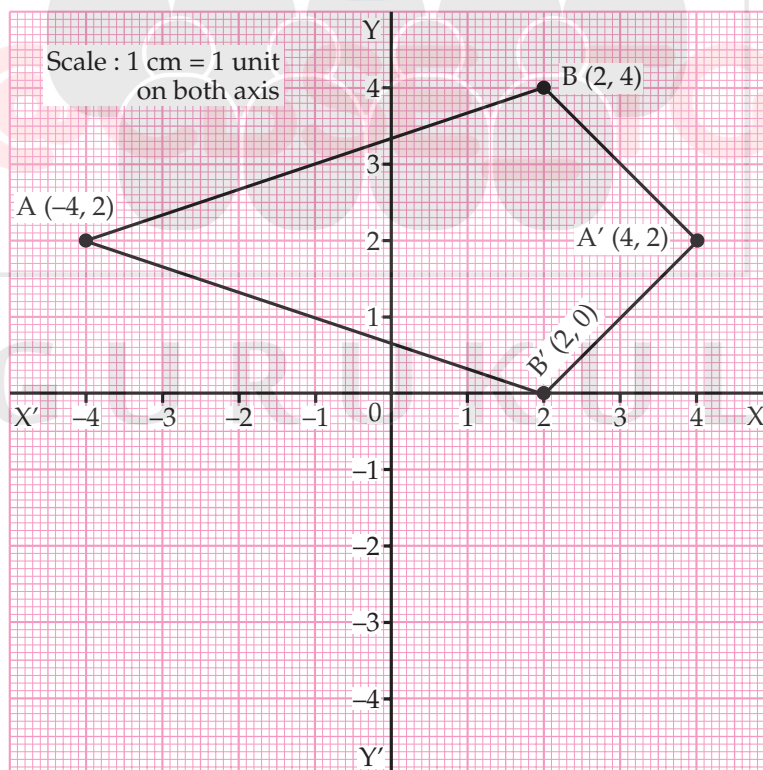
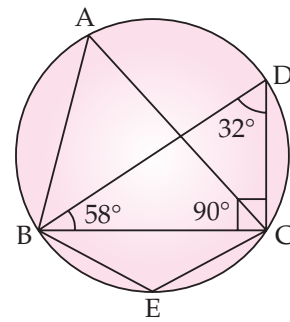
(c) (i) On the graph.

(ii) Coordinates of $A' = (4, 2)$.

(iii) Coordinates of $B' = (2, 0)$.

(iv) Geometric name of figure $ABA'B'$ is Kite.

Ans.



Note : Instead of taking 2 cm = 1 unit on both axis, we have taken 1 cm = 1 unit on both the axis.

SECTION—B

Solution 5.

(b) (i) $\frac{x^2 + y^2}{x^2 - y^2} = \frac{17}{8}$

Applying componendo and dividendo rule,

$$\frac{x^2 + y^2 + x^2 - y^2}{x^2 + y^2 - x^2 + y^2} = \frac{17 + 8}{17 - 8}$$

$$\Rightarrow \frac{2x^2}{2y^2} = \frac{25}{9}$$

$$\Rightarrow \frac{x^2}{y^2} = \frac{25}{9}$$

$$\Rightarrow \frac{x}{y} = \frac{5}{3}$$

$$x : y = 5 : 3$$

(ii) $\frac{x}{y} = \frac{5}{3}$

Taking cube on both sides,

$$\frac{x^3}{y^3} = \frac{125}{27}$$

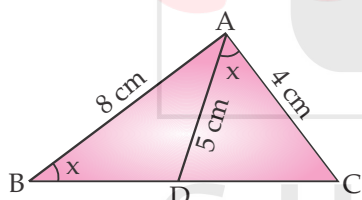
Applying componendo and dividendo rule,

$$\frac{x^3 + y^3}{x^3 - y^3} = \frac{125 + 27}{125 - 27}$$

$$\frac{x^3 + y^3}{x^3 - y^3} = \frac{152}{98}$$

- (c) Given, $\angle ABC = \angle DAC$
 $AB = 8 \text{ cm}$,
 $AC = 4 \text{ cm}$, $AD = 5 \text{ cm}$.

(i) In $\triangle ACD$ and $\triangle BCA$



$$\angle ABC = \angle DAC \quad (\text{Given})$$

$$\angle ACD = \angle BCA \quad (\text{Common})$$

$$\Rightarrow \triangle ACD \sim \triangle BCA \quad (\text{By A-axiom}).$$

Hence, $\triangle ACD \sim \triangle BCA$ **Hence Proved.**

(ii) As we have,

Since $\triangle ACD \sim \triangle BCA$, then their corresponding sides will be proportional.

$$\frac{AC}{BC} = \frac{CD}{CA} = \frac{AD}{BA}$$

$$\Rightarrow \frac{4}{BC} = \frac{CD}{4} = \frac{5}{8}$$

$$\Rightarrow \frac{4}{BC} = \frac{5}{8}$$

$$\Rightarrow BC = \frac{8 \times 4}{5} = \frac{32}{5} = 6.4 \text{ cm}.$$

$$\text{and } \frac{CD}{4} = \frac{5}{8} \Rightarrow CD = \frac{5 \times 4}{8}$$

$$\Rightarrow CD = 2.5 \text{ cm}.$$

Ans.

(iii) Area of similar triangles are proportional to the square of their corresponding sides.

$$\frac{\text{Area of } \triangle ACD}{\text{Area of } \triangle ABC} = \left(\frac{AC}{BC}\right)^2$$

$$= \left(\frac{4}{6.4}\right)^2 = \left(\frac{5}{8}\right)^2$$

Thus, area of $\triangle ACD$: area of $\triangle ABC = 25 : 64$.

Ans.

Solution 6.

(a) Equation of line passing through AC is

Here, $x_2 = a$, $y_1 = 3$, $x_1 = 5$, $y_2 = a$

$$(y - y_1) = \frac{y_2 - y_1}{x_2 - x_1}(x - x_1)$$

$$\Rightarrow (y - 3) = \left(\frac{a - 3}{5 - a}\right)(x - a)$$

As if A, B and C are collinear then B will satisfy it, i.e.,

$$A(a, 3) \quad B(2, 1) \quad C(5, a)$$

$$(1 - 3) = \left(\frac{a - 3}{5 - a}\right)(2 - a)$$

$$-2(5 - a) = (a - 3)(2 - a)$$

$$-10 + 2a = 2a - 6 - a^2 + 3a$$

$$a^2 - 3a - 4 = 0$$

$$a^2 - 4a + a - 4 = 0$$

$$a(a - 4) + 1(a - 4) = 0$$

$$(a - 4)(a + 1) = 0$$

$$\Rightarrow a = 4 \text{ or } -1.$$

Ans.

Thus, required equation of straight line is

When, $a = 4$

$$(y - 3) = \left(\frac{4 - 3}{5 - 4}\right)(x - 4)$$

$$y - 3 = \left(\frac{1}{1}\right)(x - 4)$$

$$x - y - 1 = 0$$

(b)

Face value = ₹ 50,

Dividend % = 15%

Market value = 50 + 20% of 50

$$= 50 + 10 = ₹ 60$$

Annual dividend = ₹ 600

(i) As we know,

$$\text{Dividend \%} \times (\text{No. of shares} \times \text{Face value}) = \text{Dividend}$$

$$\frac{15}{100} \times \text{No. of shares} \times 50 = 600$$

$$\text{No. of shares} = \frac{600 \times 100}{15 \times 50} = 80.$$

Ans.

(ii) Total investment = 80 × Market value

$$= 80 \times 60 = ₹ 4,800.$$

Ans.

(iii) Rate of return on his investment

$$= \left(\frac{\text{Total dividend}}{\text{Investment}} \times 100 \right) \%$$

$$= \left(\frac{600}{4,800} \times 100 \right) \%$$

$$= \left(\frac{100}{8} \right) \% = 12.5\%.$$

Ans.

(c) (i) Surface area of sphere = 2464 cm²

$$4\pi r^2 = 2464$$

$$4 \times \frac{22}{7} \times r^2 = 2464$$

$$r^2 = \frac{2464 \times 7}{4 \times 22}$$

$$r^2 = 196$$

Solution 7.

(a)

| Class Interval (Inclusive form) | Class Interval (Exclusive form) | No. of Students (f_i) | x_i | $d_i = x - 45.5$ | $f_i d_i$ |
|------------------------------------|------------------------------------|------------------------------|----------|------------------|-----------------------|
| 11—20 | 10.5—20.5 | 2 | 15.5 | -30 | -60 |
| 21—30 | 20.5—30.5 | 6 | 25.5 | -20 | -120 |
| 31—40 | 30.5—40.5 | 10 | 35.5 | -10 | -100 |
| 41—50 | 40.5—50.5 | 12 | 45.5 = A | 0 | 0 |
| 51—60 | 50.5—60.5 | 9 | 55.5 | 10 | 90 |
| 61—70 | 60.5—70.5 | 7 | 65.5 | 20 | 140 |
| 71—80 | 70.5—80.5 | 4 | 75.5 | 30 | 120 |
| | | $\Sigma f_i = 50$ | | | $\Sigma f_i d_i = 70$ |

Assumed mean (A) = 45.5

$$\Sigma f_i = 50, \Sigma f_i d_i = 70.$$

$$\text{Mean} = A + \frac{\Sigma f_i d_i}{\Sigma f_i}$$

$$= 45.5 + \frac{70}{50}$$

$$= 45.5 + 1.4$$

$$= 46.9.$$

Ans.

(b) Given, CD = 7.8 cm, PD = 5 cm, PB = 4 cm and PT is a tangent.

$$r = 14 \text{ cm}$$

Thus, radius of the sphere is 14 cm.

Ans.

(ii) For cone, $r_1 = 3.5 \text{ cm}$, $h_1 = 7 \text{ cm}$

$$\text{Volume of cone} = \frac{1}{3} \pi r_1^2 h_1$$

$$= \frac{1}{3} \pi \times 3.5 \times 3.5 \times 7$$

Volume of given sphere

$$= \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} \pi \times 14 \times 14 \times 14$$

 \therefore Number of cones recast

$$= \frac{\text{Volume of sphere}}{\text{Volume of cone}}$$

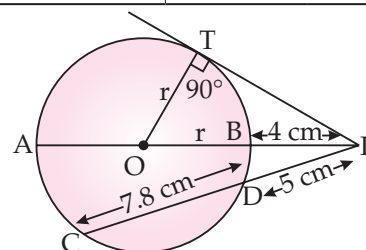
$$= \frac{\frac{4}{3} \pi \times 14 \times 14 \times 14}{\frac{1}{3} \pi \times 3.5 \times 3.5 \times 7}$$

$$= \frac{4 \times 14 \times 14 \times 14}{3.5 \times 3.5 \times 7}$$

$$= 4 \times 4 \times 4 \times 2 = 128.$$

Thus, number of cones formed are 128.

Ans.



As we know,

\therefore Square of the length of tangent is equal to the product of the length of segments of the chord from the point of contact to point of intersection.

$$\begin{aligned}
 & PT^2 = PD \times PC \\
 \Rightarrow & PT^2 = PD \times (PD + CD) \\
 & = 5 \times (5 + 7.8) \\
 \Rightarrow & PT^2 = 5 \times 12.8 \\
 \Rightarrow & PT^2 = 64 \\
 \Rightarrow & PT = 8 \text{ cm}
 \end{aligned}$$

Now in ΔPOT

$$\begin{aligned}
 PO^2 &= OT^2 + PT^2 \\
 &\quad (\text{By Pythagoras Theorem}) \\
 \Rightarrow & (r + 4)^2 = r^2 + 64 \\
 \Rightarrow & r^2 + 16 + 8r = r^2 + 64 \\
 \Rightarrow & 8r = 48 \\
 \Rightarrow & r = 6
 \end{aligned}$$

(i) Thus, $AB = 2r = 12 \text{ cm}$

(ii) Length of tangent $PT = 8 \text{ cm}$.

Ans.

(c) $A = \begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix}, B = \begin{bmatrix} 4 & 1 \\ -3 & -2 \end{bmatrix}, C = \begin{bmatrix} -3 & 2 \\ -1 & 4 \end{bmatrix}$

$$\begin{aligned}
 A^2 &= \begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix} \\
 &= \begin{bmatrix} 4+0 & 2-2 \\ 0 & 0+4 \end{bmatrix} = \begin{bmatrix} 4 & 0 \\ 0 & 4 \end{bmatrix}
 \end{aligned}$$

$$\begin{aligned}
 5B &= 5 \begin{bmatrix} 4 & 1 \\ -3 & -2 \end{bmatrix} \\
 &= \begin{bmatrix} 20 & 5 \\ -15 & -10 \end{bmatrix}
 \end{aligned}$$

$$\begin{aligned}
 AC &= \begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix} \begin{bmatrix} -3 & 2 \\ -1 & 4 \end{bmatrix} \\
 &= \begin{bmatrix} -6-1 & 4+4 \\ 0+2 & 0-8 \end{bmatrix} = \begin{bmatrix} -7 & 8 \\ 2 & -8 \end{bmatrix}
 \end{aligned}$$

$$\begin{aligned}
 \therefore A^2 + AC - 5B &= \begin{bmatrix} 4 & 0 \\ 0 & 4 \end{bmatrix} + \begin{bmatrix} -7 & 8 \\ 2 & -8 \end{bmatrix} \\
 &\quad - \begin{bmatrix} 20 & 5 \\ -15 & -10 \end{bmatrix}
 \end{aligned}$$

$$\Rightarrow = \begin{bmatrix} 4-7-20 & 0+8-5 \\ 0+2+15 & 4-8+10 \end{bmatrix}$$

$$\Rightarrow A^2 + AC - 5B = \begin{bmatrix} -23 & 3 \\ 17 & 6 \end{bmatrix}$$

Ans.

Solution 8.

(b) Steps of construction :

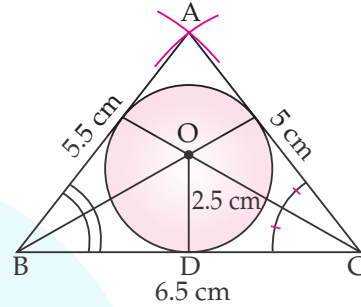
1. Draw a line $BC = 6.5 \text{ cm}$.
2. From point B and C draw an arc of 5.5 cm and 5 cm respectively and mark the intersecting point as A.
3. Join AB and AC.
4. Draw the bisectors of $\angle B$ and $\angle C$. Let, the bisectors meet at point O.

5. From O, drop perpendicular on side BC. Let OD be the perpendicular drawn on BC.
6. With O as centre, and OD as radius. Draw a circle.

The circle so obtained is the required circle.

Given that,

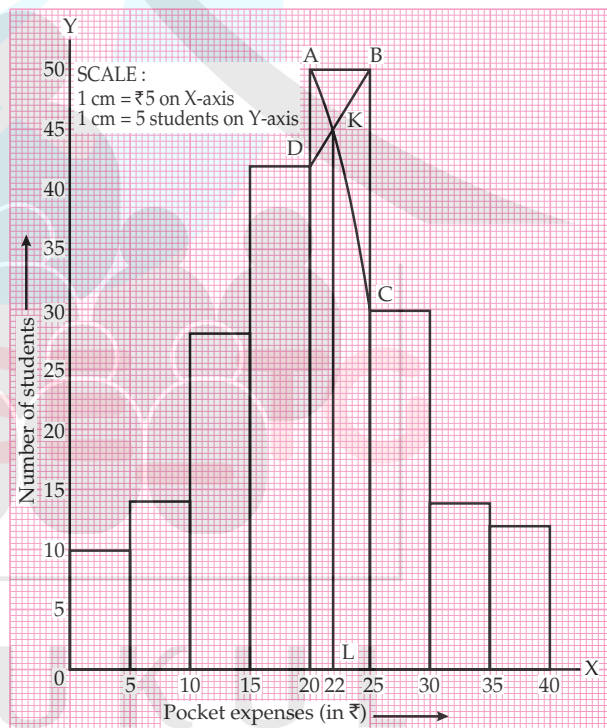
$$BC = 6.5 \text{ cm}, AB = 5.5 \text{ cm}, AC = 5 \text{ cm}$$



\therefore Radius of incircle is 2.5 cm .

Ans.

(c) Histogram on the graph paper.



Join A to C and B to D. AC and BD meet at K. Drop a perpendicular from K to X-axis at L.

\therefore Mode = 22.

Ans.

Solution 9.

(a) Given $(x - 9) : (3x + 6)$ is duplicate ratio of $4 : 9$.

$$\therefore \frac{x-9}{3x+6} = \left(\frac{4}{9}\right)^2$$

$$\Rightarrow \frac{x-9}{3x+6} = \frac{16}{81}$$

$$\Rightarrow 81(x-9) = 16(3x+6)$$

$$\Rightarrow 81x - 729 = 48x + 96$$

$$\Rightarrow 81x - 48x = 96 + 729$$

$$\Rightarrow 33x = 825$$

$$\Rightarrow x = \frac{825}{33} = 25$$

Thus, required value of x is 25.

(b) $(x-1)^2 - 3x + 4 = 0$

$$\Rightarrow x^2 + 1 - 2x - 3x + 4 = 0$$

$$\Rightarrow x^2 - 5x + 5 = 0$$

Since, middle term cannot be splitted, so we will compare it with $ax^2 + bx + c = 0$, we get

$$a = 1, b = -5, c = 5$$

By using the formula,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{5 \pm \sqrt{25 - 20}}{2} = \frac{5 \pm \sqrt{5}}{2}$$

$$x = \frac{5 \pm 2.24}{2}$$

Taking +ve sign

$$x = \frac{5 + 2.24}{2}$$

$$= \frac{-7.24}{2}$$

$$\Rightarrow x = 3.62$$

Taking -ve sign

$$x = \frac{5 - 2.25}{2}$$

$$= \frac{2.75}{2} = 1.38$$

Thus, required values are 3.62 and 1.38.

Solution 10.

- (a) Let, the unit digit be x and tens digit will be $\frac{6}{x}$.
As two digit number is $(10a + b)$. Then, two digit number is $10 \times \frac{6}{x} + x = \frac{60}{x} + x$.

$$\text{No. formed by interchanging digits} = \left(10x + \frac{6}{x}\right)$$

From question,

$$\frac{60}{x} + x + 9 = 10x + \frac{6}{x}$$

$$\Rightarrow \frac{60 + x^2 + 9x}{x} = \frac{10x^2 + 6}{x}$$

$$\Rightarrow 60 + x^2 + 9x = 10x^2 + 6$$

$$\Rightarrow 9x^2 - 9x - 54 = 0$$

$$\Rightarrow 9(x^2 - x - 6) = 0$$

$$\Rightarrow x^2 - x - 6 = 0$$

$$\Rightarrow x^2 - 3x + 2x - 6 = 0$$

$$\Rightarrow x(x-3) + 2(x-3) = 0$$

$$\Rightarrow (x-3)(x+2) = 0$$

$$\Rightarrow x = -2 \text{ or } 3$$

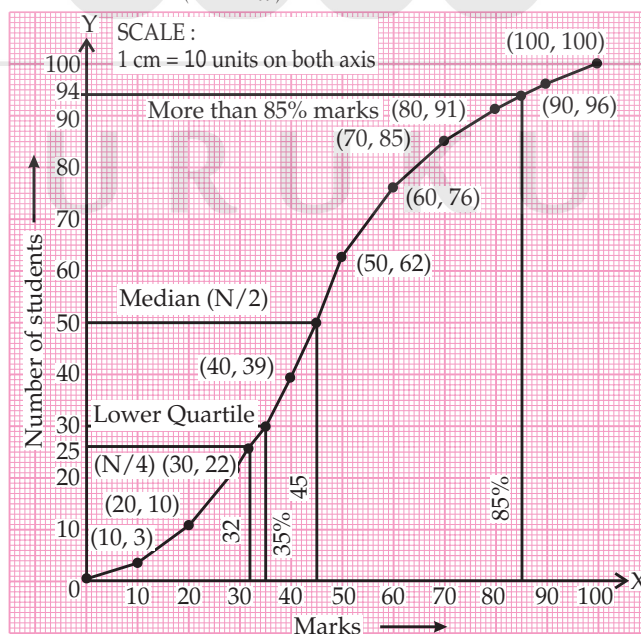
As x can't be negative.

So, required two digit number,

$$\frac{60}{x} + x = \frac{60}{3} + 3 = 23.$$

Ans.

| Marks | c.f. | Points |
|---------------|------|------------|
| Less than 10 | 3 | (10, 3) |
| Less than 20 | 10 | (20, 10) |
| Less than 30 | 22 | (30, 22) |
| Less than 40 | 39 | (40, 39) |
| Less than 50 | 62 | (50, 62) |
| Less than 60 | 76 | (60, 76) |
| Less than 70 | 85 | (70, 85) |
| Less than 80 | 91 | (80, 91) |
| Less than 90 | 96 | (90, 96) |
| Less than 100 | 100 | (100, 100) |



Note : Instead of 2 cm = 10 units, we have taken 1 cm = 10 units on both axis].

Using graph,

$$\begin{aligned} \text{(i) Median} &= \left(\frac{N}{2}\right)^{\text{th}} \text{ observation} \\ &= \left(\frac{100}{2}\right)^{\text{th}} \text{ observation} \\ &= 50^{\text{th}} \text{ observation} \\ &= 45 \end{aligned}$$

Ans.

$$\begin{aligned} \text{(ii) Lower Quartile (Q}_1\text{)} &= \left(\frac{N}{4}\right)^{\text{th}} \text{ observation} \\ &= \left(\frac{100}{4}\right)^{\text{th}} \text{ observation} \\ &= 25^{\text{th}} \text{ observation} = 32 \end{aligned}$$

Ans.

(iii) Number of students who obtained more than 85% marks

$$= (100 - 94) = 6.$$

Ans.

(iv) Number of students who did not pass if passing % of marks is 35

$$= 30.$$

Ans.

Solution 11.

(b)

$$\text{L.H.S.} = (\sin \theta + \cos \theta) (\tan \theta + \cot \theta)$$

$$= (\sin \theta + \cos \theta) \left(\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta} \right)$$

$$\left[\because \tan A = \frac{\sin A}{\cos A}, \cot A = \frac{\cos A}{\sin A} \right]$$

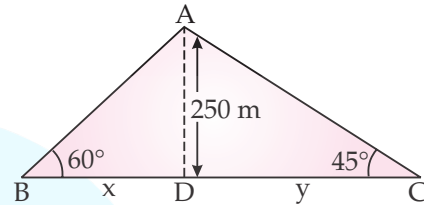
$$= (\sin \theta + \cos \theta) \left(\frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta} \right)$$

$$= (\sin \theta + \cos \theta) \frac{1}{\sin \theta \cos \theta} \quad [\because \sin^2 \theta + \cos^2 \theta = 1]$$

$$\begin{aligned} &= \frac{\sin \theta}{\sin \theta \cos \theta} + \frac{\cos \theta}{\sin \theta \cos \theta} \\ &= \frac{1}{\cos \theta} + \frac{1}{\sin \theta} \\ &= \sec \theta + \operatorname{cosec} \theta = \text{R.H.S.} \end{aligned}$$

Hence Proved.

(c) Let aeroplane be at position A and BC be the river. Drop a perpendicular from A on BC let it intersect BC at D.



In $\triangle ADB$,

$$\tan 60^\circ = \frac{AD}{BD}$$

$$\sqrt{3} = \frac{250}{x}$$

$$x = \frac{250}{\sqrt{3}} \text{ m}$$

... (i)

In $\triangle ADC$,

$$\tan 45^\circ = \frac{AD}{DC}$$

$$1 = \frac{250}{y}$$

$$y = 250 \text{ m}$$

$$\text{Thus, width of the river} = 250 + \frac{250}{\sqrt{3}} = 394 \text{ m}$$

Ans.

••

GURUKUL

QUESTIONS

SECTION—A (40 Marks)

(Attempt all questions from this Section)

Question 1.

- (a) Given $A = \begin{bmatrix} 2 & -6 \\ 2 & 0 \end{bmatrix}$, $B = \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix}$, $C = \begin{bmatrix} 4 & 0 \\ 0 & 2 \end{bmatrix}$
Find the matrix X such that $A + 2X = 2B + C$. [3]
- (b) At what rate % p.a. will a sum of ₹ 4,000 yield ₹ 1,324 as compound interest in 3 years? ** [3]
- (c) The median of the following observations 11, 12, 14, $(x - 2)$, $(x + 4)$, $(x + 9)$, 32, 38, 47 arranged in ascending order is 24. Find the value of x and hence find the mean. [4]

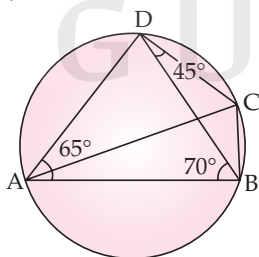
Question 2.

- (a) What number must be added to each of the numbers 6, 15, 20 and 43 to make them proportional? [3]
- (b) If $(x - 2)$ is a factor of the expression $2x^3 + ax^2 + bx - 14$ and when the expression is divided by $(x - 3)$, it leaves a remainder 52, find the values of a and b . [3]
- (c) Draw a histogram for the following frequency distribution and find the mode from the graph: [4]

| Class | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 |
|-----------|-----|------|-------|-------|-------|-------|
| Frequency | 2 | 5 | 18 | 14 | 8 | 5 |

Question 3.

- (a) Without using tables evaluate $3 \cos 80^\circ \cdot \operatorname{cosec} 10^\circ + 2 \sin 59^\circ \sec 31^\circ$. ** [3]
- (b) In the given figure, $\Rightarrow \angle BAD = 65^\circ$
 $\angle ABD = 70^\circ$, $\angle BDC = 45^\circ$.



- (i) Prove that AC is a diameter of the circle. [3]
- (ii) Find $\angle ACB$ [3]
- (c) AB is a diameter of a circle with centre $C = (-2, 5)$. If $A = (3, -7)$. Find [4]
- (i) the length of radius AC **
- (ii) the coordinates of B .

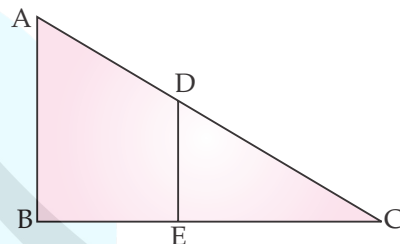
** Answer is not given due to change in the present syllabus.

Question 4.

- (a) Solve the following equation and calculate the answer correct to two decimal places :

$$x^2 - 5x - 10 = 0. \quad [3]$$

- (b) In the given figure, AB and DE are perpendicular to BC .



- (i) Prove that $\triangle ABC \sim \triangle DEC$
- (ii) If $AB = 6$ cm; $DE = 4$ cm and $AC = 15$ cm. Calculate CD .
- (iii) Find the ratio of the area of $\triangle ABC$: area of $\triangle DEC$. [3]
- (c) Using a graph paper, plot the points $A(6, 4)$ and $B(0, 4)$.
- (i) Reflect A and B in the origin to get the images A' and B' .
- (ii) Write the coordinates of A' and B' .
- (iii) State the geometrical name for the figure $ABA'B'$.
- (iv) Find its perimeter. [4]

SECTION—B (40 Marks)

(Attempt any four questions from this Section)

Question 5.

- (a) Solve the following inequation, write the solution set and represent it on the number line :

$$-\frac{x}{3} \leq \frac{x}{2} - 1\frac{1}{3} < \frac{1}{6}, x \in R,$$

Where R is a set of real numbers. [3]

- (b) Mr. Britto deposits a certain sum of money each month in a Recurring Deposit Account of a bank. If the rate of interest is of 8% per annum and Mr. Britto gets ₹ 8,088 from the bank after 3 years, find the value of his monthly instalment. [3]
- (c) Salman buys 50 shares of face value ₹ 100 available at ₹ 132.
- (i) What is his investment?

(ii) If the dividend is 7.5%, what will be his annual income ?

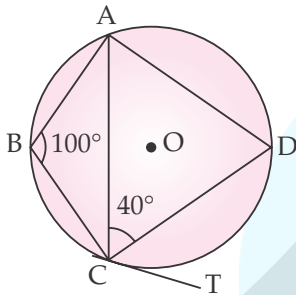
(iii) If he wants to increase his annual income by ₹ 150, how many extra shares should he buy ? [4]

Question 6.

(a) Show that,

$$\sqrt{\frac{1 - \cos A}{1 + \cos A}} = \frac{\sin A}{1 + \cos A} \quad [3]$$

(b) In the given circle with centre O , $\angle ABC = 100^\circ$, $\angle ACD = 40^\circ$ and CT is a tangent to the circle at C . Find $\angle ADC$ and $\angle DCT$. [3]



(c) Given below are the entries in a Savings Bank A/c pass book : ** [4]

| Date | Particulars | With- drawals | Deposit | Balance |
|----------|-------------|------------------|---------|---------|
| Feb. 8 | B/F | — | — | ₹ 8,500 |
| Feb. 18 | To Self | ₹ 4,000 | — | — |
| April 12 | By Cash | — | ₹ 2,230 | — |
| June 15 | To Self | ₹ 5,000 | — | — |
| July 8 | By Cash | — | ₹ 6,000 | — |

Calculate the interest for six months from February to July at 6% p.a.

Question 7.

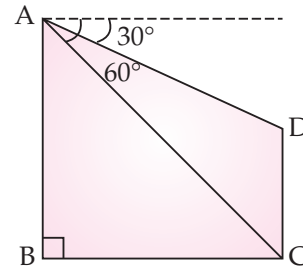
(a) In $\triangle ABC$, $A(3, 5)$, $B(7, 8)$ and $C(1, -10)$. Find the equation of the median through A . [3]

(b) A shopkeeper sells an article at the listed price of ₹ 1,500 and the rate of VAT is 12% at each stage of sale. If the shopkeeper pays a VAT of ₹ 36 to the Government, what was the price, inclusive of Tax, at which the shopkeeper purchased the article from the wholesaler ? ** [3]

(c) In the figure given, from the top of a building $AB = 60$ m high, the angles of depression of the top and bottom of a vertical lamp post CD are observed to be 30° and 60° respectively. Find :

(i) the horizontal distance between AB and CD .

(ii) the height of the lamp post. [4]



Question 8.

(a) Find x and y if $\begin{bmatrix} x & 3x \\ y & 4y \end{bmatrix} \begin{bmatrix} 2 \\ 1 \end{bmatrix} = \begin{bmatrix} 5 \\ 12 \end{bmatrix}$. [3]

(b) A solid sphere of radius 15 cm is melted and recast into solid right circular cones of radius 2.5 cm and height 8 cm. Calculate the number of cones formed. [3]

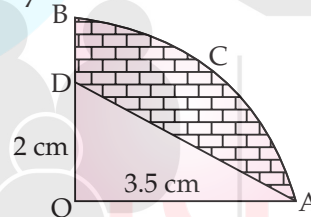
(c) Without solving the following quadratic equation, find the value of ' p ' for which the given equation has real and equal roots :

$$x^2 + (p - 3)x + p = 0 \quad [4]$$

Question 9.

(a) In the figure alongside, OAB is a quadrant of a circle. The radius $OA = 3.5$ cm and $OD = 2$ cm. Calculate the area of the shaded portion. ** [3]

(Take $\pi = \frac{22}{7}$)



(b) A box contains some black balls and 30 white balls. If the probability of drawing a black ball is two-fifths of a white ball, find the number of black balls in the box. [3]

(c) Find the mean of the following distribution by step deviation method : [4]

| Class interval | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|----------------|-------|-------|-------|-------|-------|-------|
| Frequency | 10 | 6 | 8 | 12 | 5 | 9 |

Question 10.

(a) Using a ruler and compasses only :

(i) Construct a triangle ABC with the following data :
 $AB = 3.5$ cm, $BC = 6$ cm and $\angle ABC = 120^\circ$.

(ii) In the same diagram, draw a circle with BC as diameter. Find a point P on the circumference of the circle which is equidistant from AB and BC .

(iii) Measure $\angle BCP$. [4]

(b) The marks obtained by 120 students in a test are given below :

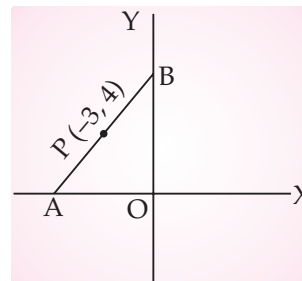
** Answer is not given due to change in the present syllabus.

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 |
|-----------------|------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| No. of Students | 5 | 9 | 16 | 22 | 26 | 18 | 11 | 6 | 4 | 3 |

Draw an ogive for the given distribution on a graph sheet.

Use suitable scale for ogive to estimate the following :

- The median.
- The number of students who obtained more than 75% marks in the test.
- The number of students who did not pass the test if minimum marks required to pass is 40.



- (b) Using the properties of proportion, solve for x , given

$$\frac{x^4 + 1}{2x^2} = \frac{17}{8} \quad [3]$$

Question 11.

- (a) In the figure given below, the line segment AB meets X-axis at A and Y-axis at B. The point P (-3, 4) on AB divides it in the ratio 2 : 3. Find the coordinates of A and B. [3]

- (c) A shopkeeper purchase a certain number of books for ₹ 960. If the cost per book was ₹ 8 less, the number of books that could be purchased for ₹ 960 would be 4 more. Write an equation, taking the original cost of each book to be ₹ x , and solve it to find the original cost of the books. [4]

ANSWERS

SECTION—A

Solution 1.

- (a) Given, $A = \begin{bmatrix} 2 & -6 \\ 2 & 0 \end{bmatrix} = B \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix} C = \begin{bmatrix} 4 & 0 \\ 0 & 2 \end{bmatrix}$
 $A + 2X = 2B + C$

$$\begin{bmatrix} 2 & -6 \\ 2 & 0 \end{bmatrix} + 2X = 2 \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix} + \begin{bmatrix} 4 & 0 \\ 0 & 2 \end{bmatrix}$$

$$2X = \begin{bmatrix} -6 & 4 \\ 8 & 0 \end{bmatrix} + \begin{bmatrix} 4 & 0 \\ 0 & 2 \end{bmatrix} - \begin{bmatrix} 2 & -6 \\ 2 & 0 \end{bmatrix}$$

$$2X = \begin{bmatrix} -6+4-2 & 4+0+6 \\ 8+0-2 & 0+2-0 \end{bmatrix}$$

$$= \begin{bmatrix} -4 & 10 \\ 6 & 2 \end{bmatrix}$$

$$X = \frac{1}{2} \begin{bmatrix} -4 & 10 \\ 6 & 2 \end{bmatrix}$$

$$\therefore X = \begin{bmatrix} -2 & 5 \\ 3 & 1 \end{bmatrix} \quad \text{Ans.}$$

- (c) 11, 12, 14, $(x-2)$, $(x+4)$, $(x+9)$, 32, 38, 47

Since, $n = 9$, odd

$$\therefore \text{Median} = \left(\frac{9+1}{2} \right)^{\text{th}} \text{ observation} \\ = 5^{\text{th}} \text{ observation} = (x+4)$$

Median is 24 for the given data

$$\therefore 24 = x + 4$$

$$24 - 4 = x$$

$$\Rightarrow x = 20 \quad \text{Ans.}$$

\therefore Observation are 11, 12, 14, $(20-2)$, $(20+4)$, $(20+9)$, 32, 38, 47

or 11, 12, 14, 18, 24, 29, 32, 38, 47

$$\text{Mean} = \bar{X} = \frac{11 + 12 + 14 + 18 + 24 + 29 + 32 + 38 + 47}{9}$$

$$= \frac{225}{9} = 25$$

The mean of the given data is 25. Ans.

Solution 2.

- (a) Let the number to be added to each of the numbers 6, 15, 20 and 43 be x .

$\therefore 6+x, 15+x, 20+x$ and $43+x$ are in proportion

$$\Rightarrow 6+x : 15+x :: 20+x : 43+x$$

$$\Rightarrow \frac{6+x}{15+x} = \frac{20+x}{43+x}$$

$$\Rightarrow (6+x)(43+x) = (15+x)(20+x)$$

$$\Rightarrow 258 + 6x + 43x + x^2 = 300 + 15x + 20x + x^2$$

$$\Rightarrow 258 + 49x + x^2 = 300 + 35x + x^2$$

$$\Rightarrow 49x - 35x + x^2 - x^2 = 300 - 258$$

$$\Rightarrow 49x - 35x = 300 - 258$$

$$\Rightarrow 14x = 42$$

$$\Rightarrow x = \frac{42}{14} = 3$$

\therefore Required number is 3. Ans.

- (b) Let, $f(x) = 2x^3 + ax^2 + bx - 14$... (i)

As $(x-2)$ is a factor of equation (i)

\therefore Putting $x - 2 = 0$
 $\Rightarrow x = 2$ in equation (i)
 We get, $f(2) = 0$
 and $f(2) = 2(2)^3 + a(2)^2 + b(2) - 14$
 $0 = 16 + 4a + 2b - 14$
 $\therefore 4a + 2b = -2$
 or $2a + b = -1 \quad \dots(ii)$
 Again, when $f(x)$ is divided by $(x - 3)$, it leaves remainder 52.

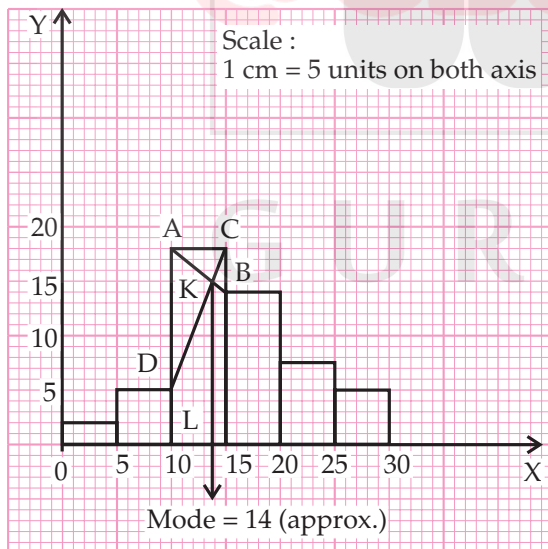
Putting $x - 3 = 0$
 $\Rightarrow x = 3$
 We get, $f(3) = 52$
 $\Rightarrow f(3) = 2(3)^3 + a(3)^2 + b(3) - 14$
 and, $52 = 54 + 9a + 3b - 14$
 $\therefore 52 = 9a + 3b + 40$
 $\Rightarrow 52 - 40 = 9a + 3b$
 $\Rightarrow 12 = 9a + 3b$
 or $4 = 3a + b \quad \dots(iii)$
 Solving (ii) and (iii)

$$\begin{array}{r}
 3a + b = 4 \\
 2a + b = -1 \\
 \hline
 -a = 5 \\
 a = -5
 \end{array}$$

Substitute $a = -5$ in equation (iii),

$$\begin{aligned}
 \Rightarrow 3 \times -5 + b &= 4 \\
 \Rightarrow 15 + b &= 4 \\
 \Rightarrow b &= 4 - 15 \\
 \Rightarrow b &= -11
 \end{aligned}$$

(c)



Using graph, in the biggest bar of class interval 10-15, we will join A to B and D to C. AB and CD meet at K. From K, drop a perpendicular on X-axis at L. Therefore, mode is 14. **Ans.**

Solution 3.

(b) Given : $\angle BAD = 65^\circ$
 $\angle ABD = 70^\circ$
 $\angle BDC = 45^\circ$

(i) In $\triangle ABD$,

$$\angle BAD + \angle ABD + \angle ADB = 180^\circ$$

(Sum of three angles of a \triangle)

$$65^\circ + 70^\circ + \angle ADB = 180^\circ$$

$$\therefore \angle ADB = 180^\circ - (65^\circ + 70^\circ) = 45^\circ$$

$$\therefore \angle ADC = \angle ADB + \angle BDC$$

$$\Rightarrow = 45^\circ + 45^\circ = 90^\circ$$

$\Rightarrow AC$ is the diameter of the circle.

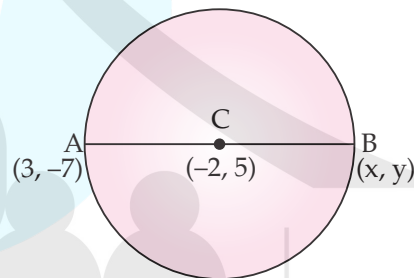
[Angle in a semi-circle is 90°] **Hence Proved.**

(ii) $\angle ACB = \angle ADB = 45^\circ$

(Angles in the same segment of a circle)

Ans.

(c) (ii) As 'C' is mid-point of AB



$$-2 = \frac{3+x}{2} \text{ and } 5 = \frac{-7+y}{2}$$

[By mid-point formula]

$$\text{or } -4 = 3+x \text{ and } 10 = -7+y$$

$$x = -7 \text{ and } y = 17$$

\therefore Coordinates of B are $(-7, 17)$.

Ans.

Solution 4.

(a) Given equation is, $x^2 - 5x - 10 = 0$

We know,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

(As, $a = 1$, $b = -5$ and $c = -10$)

$$\Rightarrow x = \frac{5 \pm \sqrt{25 - 4 \times 1 \times (-10)}}{2}$$

$$= \frac{5 \pm \sqrt{65}}{2}$$

$$= \frac{5 \pm 8.062}{2}$$

$$x_1 = \frac{5 + 8.062}{2}$$

$$= \frac{13.062}{2}$$

$$\begin{aligned}
 &= 6.531 \\
 &= 6.53 \\
 \text{and, } x_2 &= \frac{5 - 8.062}{2} \\
 &= \frac{-3.062}{2} = -1.531 \\
 &= -1.53
 \end{aligned}$$

Ans.

(b) (i) Given, in $\triangle ABC$,

$$AB \perp BC$$

$$DE \perp BC$$

To prove : $\triangle ABC \sim \triangle DEC$ Proof : In $\triangle ABC$ and $\triangle DEC$

$$\angle ABC = \angle DEC = 90^\circ \quad (\text{Given})$$

$$\angle C = \angle C \quad (\text{Common})$$

$$\therefore \triangle ABC \sim \triangle DEC \quad (\text{By AA criteria})$$

Hence Proved.

$$(ii) \quad AB = 6 \text{ cm, } DE = 4 \text{ cm}$$

$$AC = 15 \text{ cm, } CD = ?$$

Since $\triangle ABC \sim \triangle DEC$

$$\therefore \frac{AB}{DE} = \frac{AC}{CD}$$

(Corresponding sides of similar triangles are proportional)

$$\Rightarrow \frac{6}{4} = \frac{15}{CD}$$

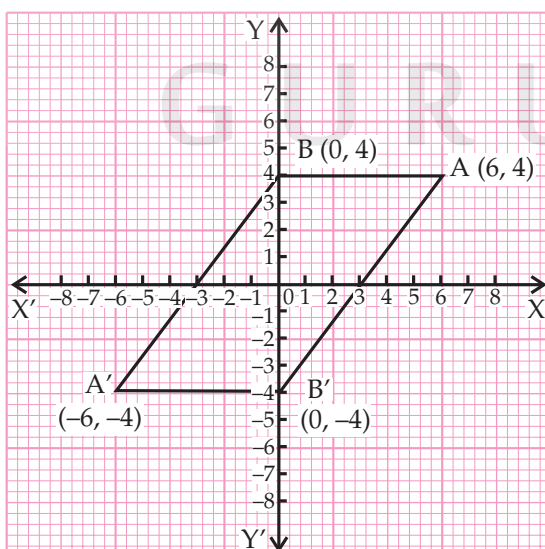
$$\Rightarrow CD = \frac{15 \times 4}{6} = 10 \text{ cm.}$$

Ans.

$$\begin{aligned}
 (iii) \quad \frac{\text{Area of } \triangle ABC}{\text{Area of } \triangle DEC} &= \frac{AB^2}{DE^2} \quad (\text{Area theorem}) \\
 &= \frac{36}{16} \\
 &= \frac{9}{4} \text{ or } 9:4
 \end{aligned}$$

Ans.

(c) (i)

(ii) Coordinates of $A'(-6, -4)$ and $B'(0, -4)$.

Ans.

(iii) $ABA'B'$ is a parallelogram.

Ans.

(iv) From the figure, $AB = 6$, $BB' = 8$, $A'B' = 6$.In right angled $\triangle ABB'$,

$$\begin{aligned}
 (AB')^2 &= (AB)^2 + (BB')^2 \\
 &= 6^2 + 8^2 = 100
 \end{aligned}$$

$$\therefore AB' = 10 = A'B$$

(ABA'B' is a parallelogram)

 \therefore Perimeter of $ABA'B'$

$$\begin{aligned}
 &= AB + BA' + A'B' + AB' \\
 &= 6 + 10 + 6 + 10 \\
 &= 32 \text{ units}
 \end{aligned}$$

Ans.

SECTION—B

Solution 5.

$$(a) \quad -\frac{x}{3} \leq \frac{x}{2} - 1 \frac{1}{3} < \frac{1}{6}, x \in \mathbb{R}$$

$$-\frac{x}{3} \leq \frac{x}{2} - 1 \frac{1}{3}$$

$$\frac{x}{2} - \frac{4}{3} < \frac{1}{6}$$

$$-\frac{x}{3} \leq \frac{x}{2} - \frac{4}{3}$$

$$\frac{x}{2} < \frac{1}{6} + \frac{4}{3}$$

$$-\frac{x}{3} \leq \frac{x}{2} + \frac{x}{3}$$

$$\frac{x}{2} < \frac{1+8}{6}$$

$$\frac{4}{3} \leq \frac{5x}{6}$$

$$x < \frac{9 \times 2}{6}$$

$$\frac{6}{5} \times \frac{4}{3} \leq x$$

$$x < 3 \quad \dots(ii)$$

$$\frac{8}{5} \leq x \quad \dots(i)$$

From equations (i) and (ii), we get

$$\frac{8}{5} \leq x < 3$$

or

$$1.6 \leq x < 3$$

 \therefore Solution set $\{x : 1.6 \leq x < 3, x \in \mathbb{R}\}$

Required number line is,



Ans.

(b) Let the monthly instalment be ₹ x .Here, $n = 36$, M.V. = ₹ 8,088, $r = 8\%$ p.a.,

$$\therefore I = P \frac{n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$\text{M.V.} = P \times n + I$$

$$8,088 = x \times 36 + \left[\frac{x \times 36 \times 37}{2 \times 12} \times \frac{8}{100} \right]$$

$$8,088 = 36x + \frac{111x}{25}$$

$$8,088 = \frac{900x + 111x}{25}$$

$$8,088 \times 25 = 1011x$$

$$\therefore x = \frac{8088 \times 25}{1011} = 200.$$

\therefore Monthly instalment is ₹ 200.

(c) Given, Number of shares = 50

F.V. = ₹ 100

M.V. = ₹ 132

(i) Investment = M.V. \times Number of shares

$$= 132 \times 50 = ₹ 6,600$$

(ii) Dividend on 1 share

$$= 7.5\% \text{ of } 100$$

$$= \frac{7.5 \times 100}{100} = ₹ 7.5$$

\therefore Annual Income (A.I.)

= Dividend on 1 share

\times No. of shares

$$= 7.5 \times 50$$

$$= ₹ 375$$

(iii) New annual income required

$$= ₹ (375 + 150) = ₹ 525$$

$$\therefore \text{New number of shares} = \frac{525}{7.5} = 70$$

\therefore No. of extra share he should buy

$$= 70 - 50 = 20.$$

Ans.

Ans.

Ans.

Ans.

Now, in ΔACD

$$\angle ACD + \angle ADC + \angle CAD = 180^\circ$$

(sum of angles of a Δ)

$$40^\circ + 80^\circ + \angle CAD = 180^\circ$$

$$\angle CAD = 180^\circ - 120^\circ = 60^\circ$$

Now,

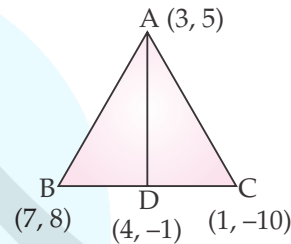
$$\angle DCT = \angle CAD = 60^\circ$$

(Alternate segment theorem) Ans.

Solution 7.

(a) Given, A (3, 5), B (7, 8) and C (1, -10) are 3 co-ordinates of Δ . Median is drawn from A at BC.

$$\text{Coordinates of } D \equiv \left(\frac{7+1}{2}, \frac{8-10}{2} \right) \equiv (4, -1)$$



(Mid point formula)

Now, equation of AD [Median through A]

$$(y - y_1) = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$

$$x_1 = 3, \quad x_2 = 4$$

$$y_1 = 5, \quad y_2 = -1$$

$$y - 5 = \frac{-1 - 5}{4 - 3} (x - 3)$$

$$y - 5 = -6(x - 3)$$

$$y - 5 = -6x + 18$$

$$\text{or } 6x + y - 23 = 0$$

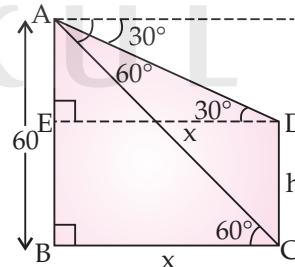
(c) We draw $DE \perp AB$

Let

$$BC = x = ED$$

$$AB = 60 \text{ (given)}$$

$$DC = h$$



\Rightarrow

$$BE = CD = h$$

\therefore

$$AE = AB - BE$$

$$= 60 - h$$

(i) In ΔABC , $\frac{AB}{BC} = \tan 60^\circ$

$$\frac{60}{x} = \sqrt{3}$$

Ans.

Solution 6.

(a) To prove, $\sqrt{\frac{1 - \cos A}{1 + \cos A}} = \frac{\sin A}{1 + \cos A}$

$$\text{L.H.S.} = \sqrt{\frac{1 - \cos A}{1 + \cos A}} = \sqrt{\frac{1 - \cos A}{1 + \cos A} \times \frac{1 + \cos A}{1 + \cos A}}$$

$$= \sqrt{\frac{(1 - \cos^2 A)}{(1 + \cos A)^2}}$$

$$= \sqrt{\frac{\sin^2 A}{(1 + \cos A)^2}}$$

$$= \sqrt{\left(\frac{\sin A}{1 + \cos A} \right)^2}$$

$$= \frac{\sin A}{1 + \cos A} = \text{R.H.S.}$$

Hence Proved.

(b) Given, $\angle ABC = 100^\circ$, $\angle ACD = 40^\circ$

and CT is a tangent at C.

$$\angle ABC + \angle ADC = 180^\circ$$

(Opposite angles of a cyclic quadrilateral)

$$100^\circ + \angle ADC = 180^\circ$$

$$\therefore \angle ADC = 180^\circ - 100^\circ = 80^\circ. \quad \text{Ans.}$$

$$\Rightarrow x = \frac{60}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{60\sqrt{3}}{3}$$

$$= 20\sqrt{3} \text{ m}$$

Horizontal distance between lamp post and building is $20\sqrt{3}$ m.

(ii) In $\triangle AED$, $\frac{AE}{ED} = \tan 30^\circ$

$$\frac{60-h}{x} = \frac{1}{\sqrt{3}}$$

$$\Rightarrow \frac{60-h}{20\sqrt{3}} = \frac{1}{\sqrt{3}}$$

$$\Rightarrow 60-h = 20$$

$$\Rightarrow h = 60-20 = 40 \text{ m.}$$

\therefore Height of lamp post is 40 m.

Solution 8.

(a) Given, $\begin{bmatrix} x & 3x \\ y & 4y \end{bmatrix} \begin{bmatrix} 2 \\ 1 \end{bmatrix} = \begin{bmatrix} 5 \\ 12 \end{bmatrix}$

$$\Rightarrow \begin{bmatrix} 2x+3x \\ 2y+4y \end{bmatrix} = \begin{bmatrix} 5 \\ 12 \end{bmatrix} \Rightarrow \begin{bmatrix} 5x \\ 6y \end{bmatrix} = \begin{bmatrix} 5 \\ 12 \end{bmatrix}$$

On comparing, we get

$$\Rightarrow 5x = 5$$

$$\Rightarrow x = 1$$

and $6y = 12$

$$\Rightarrow y = 2$$

- (b) Given, in sphere, $r = 15$ cm and in cone, $r = 2.5$ cm, $h = 8$ cm.

$$\text{Number of cones} = \frac{\text{Volume of solid sphere}}{\text{Volume of 1 cone}}$$

$$= \frac{\frac{4}{3}\pi(15)^3}{\frac{1}{3}\pi(2.5)^2 \times 8}$$

Ans.

Ans.

\therefore Number of cones formed are 270.

Ans.

- (c) Given quadratic equation is,

$$x^2 + (p-3)x + p = 0$$

Here $a = 1$, $b = p-3$, $c = p$

For real and equal roots

$$D = b^2 - 4ac = 0$$

$$\Rightarrow (p-3)^2 - 4 \times 1 \times p = 0$$

$$\Rightarrow p^2 - 6p + 9 - 4p = 0$$

$$\Rightarrow p^2 - 10p + 9 = 0$$

$$\Rightarrow p^2 - p - 9p + 9 = 0$$

$$\Rightarrow p(p-1) - 9(p-1) = 0$$

$$\Rightarrow (p-1)(p-9) = 0$$

$$\Rightarrow p = 1 \text{ or } p = 9$$

The value of p is 1 or 9.

Ans.

Solution 9.

- (b) Let the number of black balls = x

White balls = 30

Total balls = $x + 30$

$$P(\text{Black ball}) = \frac{x}{x+30}$$

$$P(\text{White ball}) = \frac{30}{x+30}$$

According to the question

$$P(\text{Black ball}) = \frac{2}{5} P(\text{White ball})$$

$$\frac{x}{x+30} = \frac{2}{5} \times \frac{30}{x+30}$$

$$\text{or } x = \frac{2}{5} \times 30$$

$$x = 12$$

\therefore Number of black balls = 12

Ans.

| (c) | C.I. | f | 'x' mid values | $u = \frac{x-A}{h}$ | $f.u$ |
|-----|-------|-----------------|----------------|---------------------|-------------------|
| | 20—30 | 10 | 25 | -3 | -30 |
| | 30—40 | 6 | 35 | -2 | -12 |
| | 40—50 | 8 | 45 | -1 | -8 |
| | 50—60 | 12 | 55 = A | 0 | 0 |
| | 60—70 | 5 | 65 | 1 | 5 |
| | 70—80 | 9 | 75 | 2 | 18 |
| | | $\Sigma f = 50$ | | | $\Sigma fu = -27$ |

Here,

A = assumed mean = 55

$h = 10$

$$\bar{X} = A + \frac{\Sigma fu}{\Sigma f} h$$

$$= 55 + \frac{(-27)}{50} \times 10$$

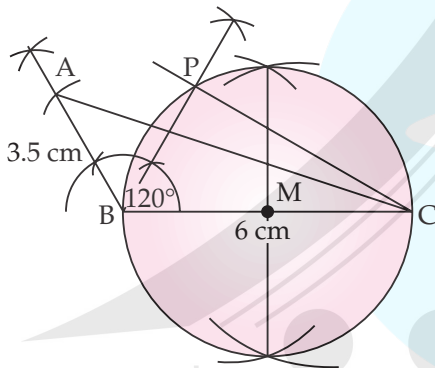
$$= 55 - 5.4 = 49.6$$

The mean of the distribution is 49.6.

Ans.

Solution 10.**(a)** Steps of construction:

- (i) 1. Draw a line $BC = 6$ cm
 2. From B, make an angle of 120°
 3. From point B, draw an arc of 3.5 cm and mark this point as A.
 4. Join AC.
- (ii) 1. Draw a perpendicular bisector on BC and mark the intersection point on BC as M.
 2. Taking M as centre and BM as radius, draw a circle.
 3. Draw the bisector of $\angle ABC$ such that it touches the circle at point P.
 4. Join PC.



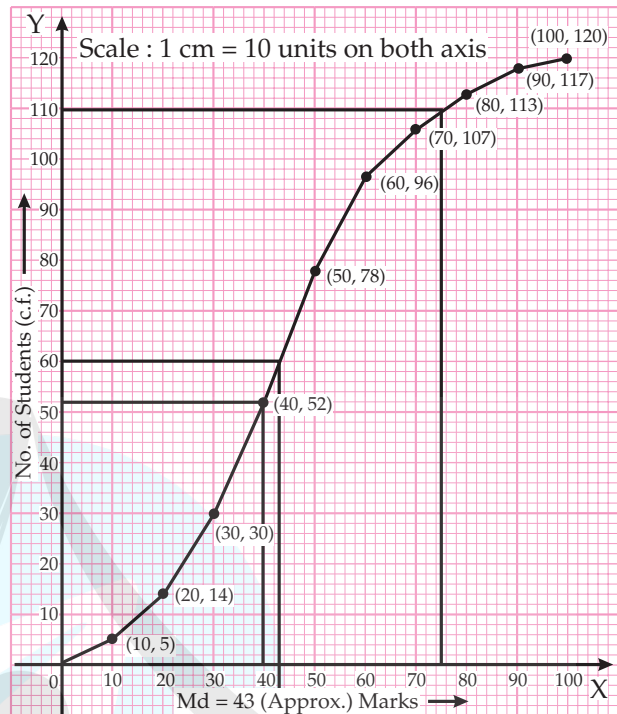
P is the required point.

(iii) $\angle BCP = 30^\circ$ **Ans.****(b)**

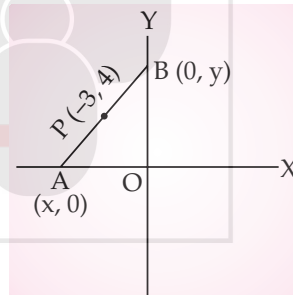
| Marks C.I. | No. of Students f | $c.f.$ |
|---------------|---------------------------|--------|
| 0—10 | 5 | 5 |
| 10—20 | 9 | 14 |
| 20—30 | 16 | 30 |
| 30—40 | 22 | 52 |
| 40—50 | 26 | 78 |
| 50—60 | 18 | 96 |
| 60—70 | 11 | 107 |
| 70—80 | 6 | 113 |
| 80—90 | 4 | 117 |
| 90—100 | 3 | 120 |

(i) Using graph, $n = 120$ (even)

$$\begin{aligned}\therefore \text{Median} &= \left(\frac{120}{2}\right)^{\text{th}} \text{ observation} \\ &= 60^{\text{th}} \text{ observation} \\ &= 43 \text{ (approx.)}\end{aligned}$$

Ans.**(ii)** Number of students who obtained more than 75% marks in the test

$$= 120 - 110 = 10$$

Ans.**(iii)** Number of students who did not pass the test = 52**Ans.****Solution 11.****(a)** Given, $AP : PB = 2 : 3$ Let A $(x, 0)$ and B $(0, y)$ \therefore By section formula,

$$\frac{m_1 \times x_2 + m_2 \times x_1}{m_1 + m_2} = x$$

Here,

$$m = 2, m_2 = 3$$

$$x_1 = 0, x_2 = x$$

$$x = -3$$

$$\Rightarrow \frac{2 \times 0 + 3 \times x}{2 + 3} = -3$$

$$\Rightarrow 3x = -15$$

$$x = -5$$

and

$$y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$$

Here, $m_1 = 2, m_2 = 3$

$$y_1 = y, y_2 = 0$$

$$y = 4$$

$$\Rightarrow \frac{2 \times y + 3 \times 0}{2 + 3} = 4$$

$$\Rightarrow 2y = 20$$

$$\Rightarrow y = 10$$

$$\begin{array}{c} A \quad \quad P \quad \quad B \\ (x, 0) \quad (-3, 4) \quad (0, y) \end{array}$$

\therefore Coordinates of

$$A \equiv (x, 0) \equiv (-5, 0)$$

and

$$B \equiv (0, y) \equiv (0, 10)$$

(b) Given, $\frac{x^4 + 1}{2x^2} = \frac{17}{8}$

Using componendo and dividendo

$$\frac{x^4 + 1 + 2x^2}{x^4 + 1 - 2x^2} = \frac{17 + 8}{17 - 8}$$

$$\Rightarrow \frac{(x^2 + 1)^2}{(x^2 - 1)^2} = \frac{25}{9}$$

$$[\because (a + b)^2 = a^2 + 2ab + b^2 \text{ and } (a - b)^2 = a^2 - 2ab + b^2]$$

$$\Rightarrow \frac{x^2 + 1}{x^2 - 1} = \frac{5}{3}$$

(Taking square root on both the sides)

Again applying componendo and dividendo

$$\frac{x^2 + 1 + x^2 - 1}{x^2 + 1 - x^2 + 1} = \frac{5 + 3}{5 - 3}$$

$$\Rightarrow \frac{2x^2}{2} = \frac{8}{2}$$

$$\Rightarrow x^2 = 4$$

$$\Rightarrow x = \pm 2$$

\therefore Value of x is 2, -2.

Ans.

(c) Let, the original cost of each book be ₹ x .

$$\therefore \text{Number of books purchased for ₹ 960} = \frac{960}{x}$$

Now, if cost of each book = ₹ $(x - 8)$

\therefore Number of books purchased for ₹ 960

$$= \frac{960}{x - 8}$$

According to the question

$$\frac{960}{x} + 4 = \frac{960}{x - 8}$$

$$\Rightarrow \frac{960}{(x - 8)} - \frac{960}{x} = 4$$

$$\Rightarrow \frac{960x - 960(x - 8)}{x(x - 8)} = 4$$

$$\Rightarrow 7,680 = 4x^2 - 32x$$

$$\Rightarrow x^2 - 8x - 1,920 = 0$$

$$\Rightarrow x^2 + 40x - 48x - 1,920 = 0$$

$$\Rightarrow x(x + 40) - 48(x + 40) = 0$$

$$\Rightarrow (x + 40)(x - 48) = 0$$

$$\Rightarrow x = -40, 48$$

As cost can't be negative

$$\therefore x = ₹ 48.$$

\therefore Cost of each book is ₹ 48.

Ans.

••

GURUKUL

QUESTIONS

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

- (a) If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ and $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, find $A^2 - 5A + 7I$. [3]

- (b) The monthly pocket money of Ravi and Sanjeev are in the ratio 5 : 7. Their expenditures are in the ratio 3 : 5. If each saves ₹ 80 every month, find their monthly pocket money. [3]

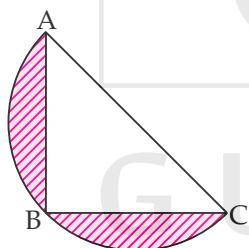
- (c) Using the Remainder Theorem, factorise completely the following polynomial. [4]

$$3x^3 + 2x^2 - 19x + 6$$

Question 2.

- (a) On what sum of money will the difference between the compound interest and simple interest for 2 years be equal to ₹ 25 if the rate of interest charged for both is 5% p.a. ?** [3]

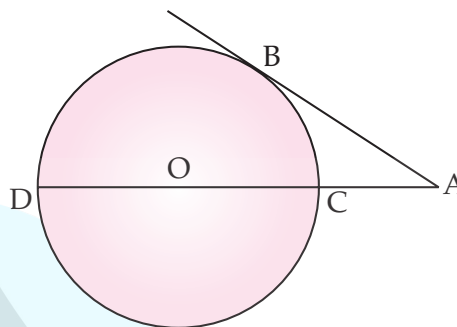
- (b) ABC is an isosceles right angled triangle with $\angle ABC = 90^\circ$. A semi-circle is drawn with AC as the diameter. If $AB = BC = 7$ cm, find the area of the shaded region. ** (Take $\pi = \frac{22}{7}$) [3]



- (c) Given a line segment AB joining the points A (-4, 6) and B (8, -3). Find : [4]
- the ratio in which AB is divided by the Y-axis.
 - find the coordinates of the point of intersection.
 - the length of AB.

Question 3.

- (a) In the given figure O is the centre of the circle and AB is a tangent at B. If $AB = 15$ cm and $AC = 7.5$ cm. Calculate the radius of the circle. [3]



- (b) Evaluate without using trigonometric tables : ** [3]

$$\cos^2 26^\circ + \cos 64^\circ \sin 26^\circ + \frac{\tan 36^\circ}{\cot 54^\circ}$$

- (c) Marks obtained by 40 students in a short assessment is given below, where a and b are two missing data. [4]

| Marks | 5 | 6 | 7 | 8 | 9 |
|-----------------|---|---|----|----|---|
| No. of Students | 6 | a | 16 | 13 | b |

If the mean of the distribution is 7.2, find a and b. [4]

Question 4.

- (a) Kiran deposited ₹ 200 per month for 36 months in a bank's recurring deposit account. If the bank pays interest at the rate of 11% per annum, find the amount she gets on maturity. [3]

- (b) Two coins are tossed once. Find the probability of getting : [3]

- 2 heads,
- at least 1 tail.

- (c) Using graph paper and taking 1 cm = 1 unit along both X-axis and Y-axis. [4]

- Plot the points A (-4, 4) and B (2, 2).
- Reflect A and B in the origin to get the images A' and B' respectively.
- Write down the coordinates of A' and B'.
- Give the geometrical name for the figure ABA'B'.
- Draw and name its lines of symmetry.

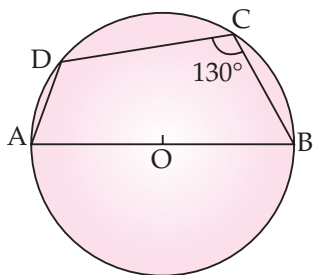
SECTION—B (40 Marks)

(Attempt any **four** questions from this Section)

Question 5.

- (a) In the given figure, AB is the diameter of a circle with centre O. [3]

** Answer is not given due to change in the present syllabus.



$\angle BCD = 130^\circ$. Find :

(i) $\angle DAB$

(ii) $\angle DBA$

[3]

(b) Given $\begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix} X = \begin{bmatrix} 7 \\ 6 \end{bmatrix}$. Write :

(i) the order of the matrix X.

(ii) the matrix X.

[3]

(c) A page from the Savings Bank Account of Mr. Prateek is given below :

| Date | Particulars | Withdrawal (in ₹) | Deposit (in ₹) | Balances (in ₹) |
|--------------------------------|-------------|----------------------|-------------------|--------------------|
| January 1 st 2006 | B/F | — | — | 1,270 |
| January 7 th 2006 | By Cheque | — | 2,310 | 3,580 |
| March 9 th 2006 | To Self | 2,000 | — | 1,580 |
| March 26 th 2006 | By Cash | — | 6,200 | 7,780 |
| June 10 th 2006 | To Cheque | 4,500 | — | 3,280 |
| July 15 th 2006 | By Clearing | — | 2,630 | 5,910 |
| October 18 th 2006 | To Cheque | 530 | — | 5,380 |
| October 27 th 2006 | To Self | 2,690 | — | 2,690 |
| November 3 rd 2006 | By Cash | — | 1,500 | 4,190 |
| December 6 th 2006 | To Cheque | 950 | — | 3,240 |
| December 23 rd 2006 | By Transfer | — | 2,920 | 6,160 |

If he receives ₹ 198 as interest on 1st January, 2007, find the rate of interest paid by the bank. **

[4]

(b) Solve the following equation and give your answer correct to 3 significant figures :

$$5x^2 - 3x - 4 = 0$$

[3]

Question 6.

(a) The printed price of an article is ₹ 60,000. The wholesaler allows a discount of 20% to the shopkeeper. The shopkeeper sells the article to the customer at the printed price. Sales tax (under VAT) is charged at the rate of 6% at every stage. Find : **

(i) the cost to the shopkeeper inclusive of tax.

(ii) VAT paid by the shopkeeper to the Government.

(iii) the cost to the customer inclusive of tax. [3]

(b) Solve the following inequation and represent the solution set on the number line :

$$4x - 19 < \frac{3x}{5} - 2 \leq \frac{-2}{5} + x, x \in R, [3]$$

Where R is a set of real numbers.

(c) Without solving the following quadratic equation, find the value of 'm' for which the given equation has real and equal roots.

$$x^2 + 2(m-1)x + (m+5) = 0 [4]$$

Question 7.

(a) A hollow sphere of internal and external radii 6 cm and 8 cm respectively is melted and recast into small cones of base radius 2 cm and height 8 cm. Find the number of cones. [3]

** Answer is not given due to change in the present syllabus.

(c) As observed from the top of a 80 m tall lighthouse, the angles of depression of two ships on the same side of the light house in horizontal line with its base are 30° and 40° respectively. Find the distance between the two ships. Give your answer correct to the nearest metre. [4]

Question 8.

(a) A man invests ₹ 9600 on ₹ 100 shares at ₹ 80. If the company pays him 18% dividend find:

(i) the number of shares he buys.

(ii) his total dividend.

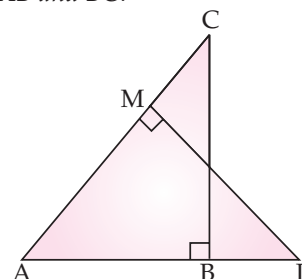
(iii) his percentage return on the shares. [3]

(b) In the given figure $\triangle ABC$ and $\triangle AMP$ are right angled at B and M respectively.

Given $AC = 10$ cm, $AP = 15$ cm and $PM = 12$ cm.

(i) Prove $\triangle ABC \sim \triangle AMP$.

(ii) Find AB and BC. [3]



- (c) If $x = \frac{\sqrt{a+1} + \sqrt{a-1}}{\sqrt{a+1} - \sqrt{a-1}}$, using properties of proportion show that $x^2 - 2ax + 1 = 0$ [4]

Question 9.

- (a) The line through A (-2, 3) and B (4, b) is perpendicular to the line $2x - 4y = 5$. Find the value of b. [3]
- (b) Prove that $\frac{\tan^2 \theta}{(\sec \theta - 1)^2} = \frac{1 + \cos \theta}{1 - \cos \theta}$. [3]
- (c) A car covers a distance of 400 km at a certain speed. Had the speed been 12 km/h more, the time taken for the journey would have been 1 hour 40 minutes less. Find the original speed of the car. [4]

Question 10.

- (a) Construct a triangle ABC in which base BC = 6 cm, AB = 5.5 cm and $\angle ABC = 120^\circ$.
- (i) Construct a circle circumscribing the triangle ABC.
- (ii) Draw a cyclic quadrilateral ABCD so that D is equidistant from B and C. [4]
- (b) The following distribution represents the height of 160 students of a school.

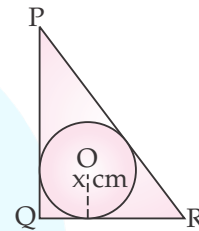
| Height (in cm) | No. of Students |
|----------------|-----------------|
| 140-145 | 12 |
| 145-150 | 20 |
| 150-155 | 30 |
| 155-160 | 38 |
| 160-165 | 24 |
| 165-170 | 16 |
| 170-175 | 12 |
| 175-180 | 8 |

Draw an ogive for the given distribution taking 2 cm = 5 cm of height on one axis and 2 cm = 20 students on the other axis. Using the graph, determine :

- (i) The median height.
- (ii) The interquartile range.
- (iii) The number of students whose height is above 172 cm. [6]

Question 11.

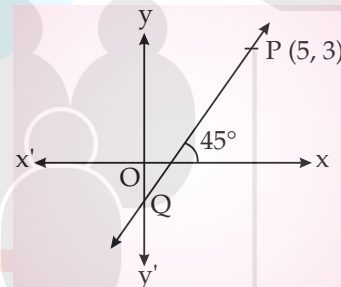
- (a) In triangle PQR, PQ = 24 cm, QR = 7 cm and $\angle PQR = 90^\circ$. Find the radius of the inscribed circle. [3]



- (b) Find the mode and median of the following frequency distribution : [3]

| x | 10 | 11 | 12 | 13 | 14 | 15 |
|---|----|----|----|----|----|----|
| f | 1 | 4 | 7 | 5 | 9 | 3 |

- (c) The line through P (5, 3) intersects Y-axis at Q.



- (i) Write the slope of the line.
- (ii) Write the equation of the line.
- (iii) Find the coordinates of Q. [4]

ANSWERS

SECTION—A

Solution 1.

(a) $A^2 = A \cdot A$

$$= \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix} \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$$

$$= \begin{bmatrix} 9-1 & 3+2 \\ -3-2 & -1+4 \end{bmatrix}$$

Now, $= \begin{bmatrix} 8 & 5 \\ -5 & 3 \end{bmatrix}$

$$A^2 - 5A + 7I = \begin{bmatrix} 8 & 5 \\ -5 & 3 \end{bmatrix} - 5 \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix} + 7 \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$= \begin{bmatrix} 8 & 5 \\ -5 & 3 \end{bmatrix} - \begin{bmatrix} 15 & 5 \\ -5 & 10 \end{bmatrix} + \begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$$

$$= \begin{bmatrix} 8-15 & 5-5 \\ -5+5 & 3-10 \end{bmatrix} + \begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$$

$$= \begin{bmatrix} -7 & 0 \\ 0 & -7 \end{bmatrix} + \begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$$

$$= \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix} = 0$$

Ans.

- (b) Let, the monthly pocket money of Ravi and Sanjeev be $5x$ and $7x$ respectively and their expenditures be $3y$ and $5y$.

$$\text{So, } 5x - 3y = 80 \quad \dots(i)$$

$$\text{And, } 7x - 5y = 80 \quad \dots(ii)$$

Multiplying equation (i) by 5 and equation (ii) by 3, we get

$$25x - 15y = 400 \quad \dots(iii)$$

$$21x - 15y = 240 \quad \dots(iv)$$

$$\begin{array}{r} \text{Sub.} \quad - \quad + \quad - \\ \hline \end{array}$$

$$4x = 160$$

$$\Rightarrow x = 40$$

So monthly pocket money of Ravi

$$= ₹ 5 \times 40 = ₹ 200$$

$$\text{And of Sanjeev} = ₹ 7 \times 40 = ₹ 280$$

Ans.

- (c) Let, $P(x) = 3x^3 + 2x^2 - 19x + 6$

$$\text{Putting } x = 2, P(2) = 3 \times 2^3 + 2 \times 2^2 - 19 \times 2 + 6$$

$$= 24 + 8 - 38 + 6$$

$$= 38 - 38 = 0$$

$\Rightarrow (x - 2)$ is a factor of $P(x)$

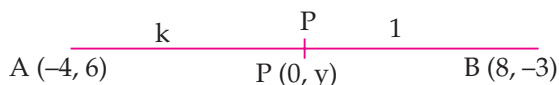
$$\begin{array}{r} \text{Now, } x-2 \overline{) 3x^3 + 2x^2 - 19x + 6} \\ \underline{3x^3 - 6x^2} \\ 8x^2 - 19x \\ \underline{8x^2 - 16x} \\ -3x + 6 \\ \underline{-3x + 6} \\ 0 \end{array}$$

$$\begin{aligned} \Rightarrow 3x^3 + 2x^2 - 19x + 6 &= (x - 2) \cdot (3x^2 + 8x - 3) \\ &= (x - 2) (3x^2 + 9x - x - 3) \\ &= (x - 2) [3x(x + 3) - 1(x + 3)] \\ &= (x - 2) (x + 3) (3x - 1) \end{aligned}$$

Ans.

Solution 2.

- (c)



Let the line segment AB is divided by Y-axis at point P in the ratio $k : 1$.

- (i) Since P lies on Y-axis so $x = 0$, then coordinates of P are $(0, y)$.

$$\text{We have, } x = \frac{m_1 x_2 + m_2 x_1}{m_1 + m_2}$$

$$\Rightarrow 0 = \frac{k \times 8 + 1 \times (-4)}{k + 1}$$

$$\Rightarrow 8k - 4 = 0$$

$$\Rightarrow 8k = 4$$

$$\Rightarrow k = \frac{4}{8} = \frac{1}{2}$$

So, required ratio is $1 : 2$

Ans.

$$(ii) \text{ Now, } y = \frac{m_1 y_2 + m_2 y_1}{m_1 + m_2}$$

$$y = \frac{1 \times (-3) + 2 \times 6}{1 + 2}$$

$$= \frac{-3 + 12}{3} = 3$$

So, coordinates of point of intersection on Y-axis are $(0, 3)$.

Ans.

Solution 3.

- (a) Given, $AB = 15$ cm, $AC = 7.5$ cm.

If a chord and a tangent intersect externally then product of segments of the chord is equal to square of the length of the tangent.

$$AB^2 = AC \times AD$$

$$\Rightarrow 15^2 = 7.5 \times AD$$

$$\Rightarrow AD = \frac{225}{7.5} = 30$$

$$\Rightarrow CD = AD - AC = 30 - 7.5 = 22.5$$

$$\text{Radius} = \frac{1}{2} \times CD$$

$$\text{Radius} = \frac{1}{2} \times 22.5$$

$$\text{Radius} = 11.25 \text{ cm.}$$

Ans.

| Marks (x) | No. of students (f) | $f \cdot x$ |
|-----------|-------------------------|-----------------------------|
| 5 | 6 | 30 |
| 6 | a | $6a$ |
| 7 | 16 | 112 |
| 8 | 13 | 104 |
| 9 | b | $9b$ |
| | $\Sigma f = 35 + a + b$ | $\Sigma fx = 246 + 6a + 9b$ |

Now,

$$35 + a + b = 40$$

$$a + b = 5 \quad \dots(i)$$

And,

$$\bar{X} = \frac{\Sigma fx}{\Sigma f}$$

$$7.2 = \frac{246 + 6a + 9b}{40}$$

$$\Rightarrow 6a + 9b + 246 = 288$$

$$\Rightarrow 6a + 9b = 42$$

$$\Rightarrow 2a + 3b = 14 \quad \dots(ii)$$

Multiplying by 2 in equation (i) and solving with equation (ii)

$$2a + 2b = 10$$

$$2a + 3b = 14$$

On subtracting $(-)$ $(-)$ $(-)$

$$-b = -4$$

$$\Rightarrow b = 4$$

Putting the value of b in equation (i), we get

$$a + 4 = 5$$

$$\Rightarrow a = 1$$

$$\therefore a = 1, b = 4$$

Ans.

Solution 4.

(a) Given, $P = ₹ 200$, $n = 36$ months, $R = 11\%$

$$\text{Interest} = \frac{P \times n(n+1) \times R}{2 \times 12 \times 100}$$

$$= \frac{200 \times 36 \times 37 \times 11}{2,400}$$

$$= 3 \times 37 \times 11 = ₹ 1,221$$

Sum deposited $= n \times P$

$$= 36 \times 200 = ₹ 7,200$$

$$\Rightarrow \text{Amount} = nP + I$$

$$= 7,200 + 1,221$$

$$= ₹ 8,421$$

\therefore Total amount she will get is ₹ 8,421.

Ans.

(b) If two coins are tossed once, then total outcomes

$$S = \{HH, HT, TH, TT\}$$

$$\Rightarrow n(S) = 4$$

(i) Let E be the event of getting two heads

$$E = \{HH\}$$

\therefore Favourable outcomes

$$n(E) = 1$$

Required probability

$$P(E) = \frac{n(E)}{n(S)}$$

$$= \frac{1}{4}$$

Ans.

(ii) Let F be the event of getting atleast one tail

$$(F) = \{HT, TH, TT\}$$

\therefore Favourable outcomes

$$n(F) = 3$$

Required probability

$$P(F) = \frac{n(F)}{n(S)} = \frac{3}{4}$$

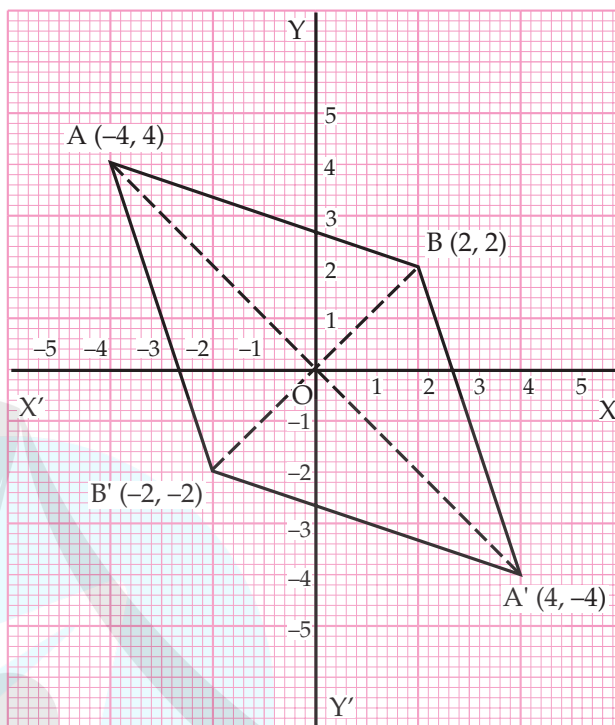
Ans.

(c) (i), (ii) on graph

(iii) $A'(4, -4)$

$B'(-2, -2)$

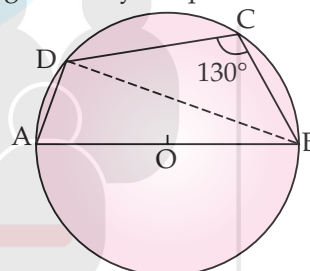
(iv) Rhombus



SECTION—B

Solution 5.

(a) (i) $\angle DAB + \angle BCD = 180^\circ$
(Opp. angles of a cyclic quadrilateral)



$$\Rightarrow \angle DAB + 130^\circ = 180^\circ$$

($\angle BCD = 130^\circ$ given)

$$\Rightarrow \angle DAB = 180^\circ - 130^\circ$$

$$\Rightarrow \angle DAB = 50^\circ$$

$$(ii) \angle ADB = 90^\circ$$

(angle in semi-circle)

In $\triangle ADB$,

$$\angle DAB + \angle ADB + \angle DBA = 180^\circ$$

(Angle sum property)

$$\Rightarrow 50^\circ + 90^\circ + \angle DBA = 180^\circ$$

$$\Rightarrow \angle DBA = 180^\circ - 140^\circ$$

$$\Rightarrow \angle DBA = 40^\circ$$

Ans.

$$(b) (i) \begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix}_{2 \times 2} X = \begin{bmatrix} 7 \\ 6 \end{bmatrix}_{2 \times 1}$$

According to the given condition, the order of matrix X will be 2×1 .

Ans.

(ii) Let $X = \begin{bmatrix} a \\ b \end{bmatrix}$

so $\begin{bmatrix} 2 & 1 \\ -3 & 4 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 7 \\ 6 \end{bmatrix}$

$\Rightarrow \begin{bmatrix} 2a+b \\ -3a+4b \end{bmatrix} = \begin{bmatrix} 7 \\ 6 \end{bmatrix}$

$\Rightarrow 2a + b = 7 \quad \dots(i)$

$\Rightarrow -3a + 4b = 6 \quad \dots(ii)$

Multiplying by 4 in equation (i) and solving with equation (ii)

$$8a + 4b = 28$$

$$-3a + 4b = 6$$

On subtracting (+) (-) (-)

$$11a = 22$$

$\therefore a = 2$

Putting the value of a in equation (i), we get

$$2 \times 2 + b = 7$$

$\therefore b = 7 - 4 = 3$

$\Rightarrow X = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$

Solution 6.

(b) $4x - 19 < \frac{3x}{5} - 2 \leq \frac{-2}{5}, x \in \mathbb{R}$

$\Rightarrow 4x - 19 < \frac{3x}{5} - 2 \quad \left| \quad \frac{3x}{5} - 2 \leq \frac{-2}{5} + x \right.$

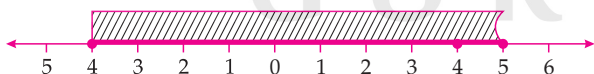
$4x - \frac{3x}{5} < -2 + 19 \quad \left| \quad \frac{3x}{5} - x \leq \frac{-2}{5} + 2 \right.$

$\Rightarrow \frac{17x}{5} < 17 \quad \left| \quad -2x \leq 8 \right.$

$\Rightarrow x < 5 \quad \left| \quad 2x \geq -8 \right.$

$\Rightarrow -4 \leq x < 5 \quad \left| \quad x \geq -4 \right.$

Solution Set : $\{x : -4 \leq x < 5, x \in \mathbb{R}\}$



(c) Given quadratic equation

$$x^2 + 2(m-1)x + (m+5) = 0$$

On comparing with $ax^2 + bx + c = 0$

$a = 1, b = 2(m-1), c = (m+5)$

Since equation has real and equal roots

$\therefore D = 0$

$\Rightarrow b^2 - 4ac = 0$

$\Rightarrow [2(m-1)]^2 - 4 \times 1 \times (m+5) = 0$

$\Rightarrow 4(m-1)^2 - 4(m+5) = 0$

$\Rightarrow 4[(m-1)^2 - (m+5)] = 0$

$\Rightarrow 4[m^2 - 2m + 1 - m - 5] = 0$

$\Rightarrow m^2 - 3m - 4 = 0$

$\Rightarrow m^2 - 4m + m - 4 = 0$

$\Rightarrow m(m-4) + 1(m-4) = 0$

$\Rightarrow (m+1)(m-4) = 0$

$\Rightarrow m+1 = 0, \quad m-4 = 0$

$\Rightarrow m = -1 \quad \text{and} \quad m = 4$

$\therefore m = -1, 4$

Ans.

Solution 7.

(a) Volume of metal in hollow sphere

$$= \frac{4}{3}\pi(8^3 - 6^3)$$

$$= \frac{1184}{3}\pi \text{ cm}^3$$

Volume of metal in one cone

$$= \frac{1}{3}\pi r^2 h$$

$$= \frac{1}{3}\pi \times 2^2 \times 8$$

$$= \frac{32}{3}\pi \text{ cm}^3$$

Number of cones = $\frac{\text{Volume of metal in sphere}}{\text{Volume of metal in one cone}}$

$$= \frac{\frac{1184}{3}\pi}{\frac{32}{3}\pi}$$

$$= \frac{1184}{32} = 37$$

Ans.

(b) Given equation is, $5x^2 - 3x - 4 = 0$

On comparing with $ax^2 + bx + c = 0$, we get

$a = 5, b = -3, c = -4$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{3 \pm \sqrt{9 - 4 \times 5(-4)}}{2 \times 5}$$

$$x = \frac{3 \pm \sqrt{9 + 80}}{10} = \frac{3 \pm \sqrt{89}}{10}$$

$$x = \frac{3 \pm 9.434}{10}$$

$$x = \frac{3 + 9.434}{10}$$

$$x = \frac{3 - 9.434}{10}$$

$$x = \frac{12.434}{10}$$

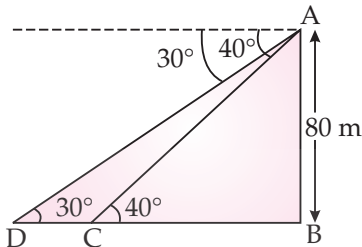
$$\text{or } x = \frac{-6.434}{10}$$

$$x = 1.243$$

$$\text{or } x = -0.643$$

Ans.

- (c) In fig. AB is 80 m tall light house, the two ships are at C and D.

In ΔABC ,

$$\tan 40^\circ = \frac{AB}{BC}$$

$$\Rightarrow BC = \frac{AB}{\tan 40^\circ}$$

$$BC = \frac{80}{0.8391}$$

(using trigonometric table)

$$= 95.34 \text{ m}$$

In ΔABD ,

$$\tan 30^\circ = \frac{AB}{BD}$$

$$\Rightarrow BD = \frac{AB}{\tan 30^\circ} = \frac{80}{0.5774}$$

$$= 138.55 \text{ m}$$

Distance between two ships

$$DC = BD - BC$$

$$= 138.55 - 95.34$$

$$= 43.21 \text{ m} = 43 \text{ m (approx.)}$$

Ans.

Solution 8.

- (a) (i) Number of shares = $\frac{\text{Investment}}{\text{M.V.}}$

$$= \frac{9,600}{80} = 120$$

Ans.

- (ii) Total dividend = $\frac{18}{100} \times 100 \times 120$

$$= ₹ 2,160$$

Ans.

- (iii) Percentage return

$$= \frac{\text{Total dividend}}{\text{Investment}}$$

$$= \frac{2,160}{9,600} \times 100 = 22.5\%$$

Ans.

- (b) Given, ΔABC and ΔAMP , with right angle at B and M respectively. $AC = 10 \text{ cm}$, $AP = 15 \text{ cm}$, and $PM = 12 \text{ cm}$.

- (i) In ΔABC and ΔAMP

$$\angle ABC = \angle AMP \quad (90^\circ \text{ each})$$

$$\angle A = \angle A \quad (\text{Common})$$

$$\therefore \Delta ABC \sim \Delta AMP \quad (\text{By AA similarity})$$

Hence Proved.

- (ii) Given, $AC = 10 \text{ cm}$, $AP = 15 \text{ cm}$, $PM = 12 \text{ cm}$.

$$\therefore \Delta ABC \sim \Delta AMP$$

$$\therefore \frac{AB}{AM} = \frac{BC}{PM} = \frac{AC}{AP}$$

(corresponding sides of similar triangles are in proportion)

$$\Rightarrow \frac{BC}{PM} = \frac{AC}{AP}$$

$$\Rightarrow \frac{BC}{12} = \frac{10}{15}$$

$$\Rightarrow BC = \frac{10}{15} \times 12$$

$$BC = 8 \text{ cm}$$

Ans.

In ΔABC , right angled at B

$$AC^2 = AB^2 + BC^2$$

(Pythagoras theorem)

$$\text{Now, } AB^2 = AC^2 - BC^2$$

$$= 10^2 - 8^2 = 100 - 64 = 36$$

$$AB = 6 \text{ cm}$$

Ans.

- (c) Given,

$$x = \frac{\sqrt{a+1} + \sqrt{a-1}}{\sqrt{a+1} - \sqrt{a-1}}$$

$$\frac{x}{1} = \frac{\sqrt{a+1} + \sqrt{a-1}}{\sqrt{a+1} - \sqrt{a-1}}$$

Using componendo and dividendo

$$\Rightarrow \frac{x+1}{x-1} = \frac{\sqrt{a+1} + \sqrt{a-1} + \sqrt{a+1} - \sqrt{a-1}}{\sqrt{a+1} + \sqrt{a-1} - \sqrt{a+1} + \sqrt{a-1}}$$

$$\Rightarrow \frac{x+1}{x-1} = \frac{2\sqrt{a+1}}{2\sqrt{a-1}}$$

$$\Rightarrow \frac{(x+1)^2}{(x-1)^2} = \frac{a+1}{a-1}$$

(Squaring both side)

$$\Rightarrow \frac{x^2 + 2x + 1}{x^2 - 2x + 1} = \frac{a+1}{a-1}$$

Again using componendo and dividendo

$$\frac{(x^2 + 2x + 1) + (x^2 - 2x + 1)}{(x^2 + 2x + 1) - (x^2 - 2x + 1)} = \frac{(a+1) + (a-1)}{(a+1) - (a-1)}$$

$$\Rightarrow \frac{x^2 + 2x + 1 + x^2 - 2x + 1}{x^2 + 2x + 1 - x^2 + 2x - 1} = \frac{a + 1 + a - 1}{a + 1 - a + 1}$$

$$\Rightarrow \frac{2x^2 + 2}{4x} = \frac{2a}{2}$$

$$\Rightarrow \frac{x^2 + 1}{2x} = \frac{a}{1}$$

$$\Rightarrow x^2 + 1 = 2ax$$

$$\Rightarrow x^2 - 2ax + 1 = 0. \quad \text{Hence Proved.}$$

Solution 9.

(a) Given, A (-2, 3), B (4, b)

$$\text{Slope of AB} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\Rightarrow m_1 = \frac{b - 3}{4 + 2}$$

$$\Rightarrow m_1 = \frac{b - 3}{6}$$

$$\text{And } 2x - 4y = 5$$

$$\Rightarrow 4y = 2x - 5$$

$$\Rightarrow y = \frac{1}{2}x - \frac{5}{4}$$

On comparing with $y = mx + c$

$$\text{Slope } (m_2) = \frac{1}{2}$$

Since both lines are perpendicular to each other

$$\therefore m_1 \times m_2 = -1$$

$$\frac{b - 3}{6} \times \frac{1}{2} = -1$$

$$b - 3 = -12$$

$$b = -9$$

Ans.

(b) L.H.S. = $\frac{\tan^2 \theta}{(\sec \theta - 1)^2}$

$$= \frac{\frac{\sin^2 \theta}{\cos^2 \theta}}{\left(\frac{1}{\cos \theta} - 1\right)^2}$$

$$\left(\because \tan \theta = \frac{\sin \theta}{\cos \theta}; \sec \theta = \frac{1}{\cos \theta}\right)$$

$$= \frac{\frac{\sin^2 \theta}{\cos^2 \theta}}{(1 - \cos \theta)^2} = \frac{\sin^2 \theta}{(1 - \cos \theta)^2}$$

$$= \frac{1 - \cos^2 \theta}{(1 - \cos \theta)^2} \quad (\because \sin^2 \theta = 1 - \cos^2 \theta)$$

$$= \frac{(1 - \cos \theta)(1 + \cos \theta)}{(1 - \cos \theta)^2}$$

$$[\because a^2 - b^2 = (a - b)(a + b)]$$

$$= \frac{1 + \cos \theta}{1 - \cos \theta} = \text{R.H.S.} \quad \text{Hence Proved.}$$

(c) Let the original speed of the car be x km/h.

$$\text{So, time taken by car} = \frac{400}{x} \text{ hrs}$$

$$\text{When, Speed} = (x + 12) \text{ km/h}$$

$$\text{Time taken by car} = \frac{400}{x + 12} \text{ hrs}$$

According to the question,

$$\frac{400}{x} - \frac{400}{x + 12} = 1 \text{ hour} + 40 \text{ minutes}$$

$$\left[\left(1 + \frac{40}{60} \right) \text{ hour} \right]$$

$$400 \left[\frac{(x + 12 - x)}{x(x + 12)} \right] = 1 + \frac{2}{3}$$

$$\Rightarrow \frac{4800}{x^2 + 12x} = \frac{5}{3}$$

$$\Rightarrow 5(x^2 + 12x) = 14,400$$

$$\Rightarrow x^2 + 12x - 2,880 = 0$$

$$\Rightarrow x^2 + 60x - 48x - 2,880 = 0$$

$$\Rightarrow x(x + 60) - 48(x + 60) = 0$$

$$\Rightarrow (x + 60)(x - 48) = 0$$

$$\text{Either, } x + 60 = 0$$

$$x = -60$$

(Neglect, speed can't be negative)

$$\text{or } x - 48 = 0$$

$$x = 48$$

Hence, original speed of the car = 48 km/h

Ans.

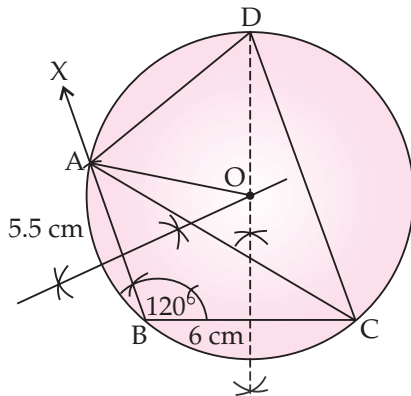
Solution 10.

(a) (i) Steps of construction :

1. Draw a line segment BC = 6 cm.
2. Construct $\angle XBC = 120^\circ$.
3. From B, cut an arc of 5.5 cm on side XB, and mark this point as A.
4. Join A to C.
5. Construct perpendicular bisectors of AB and BC, intersecting at O. Join AO.
6. Taking O as centre and OA as radius, draw a circle, passing through A, B and C.

(ii) 1. Extend the right bisector of BC, intersecting the circle at D.

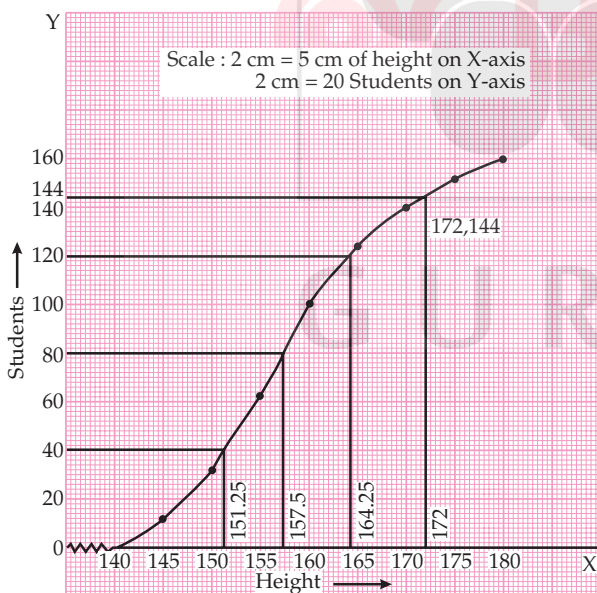
2. Join A to D and C to D.



∴ ABCD is required cyclic quadrilateral.

| (b) | Height (in cm) | No. of Students (f) | cf |
|-----|----------------|---------------------|-----|
| | 140-145 | 12 | 12 |
| | 145-150 | 20 | 32 |
| | 150-155 | 30 | 62 |
| | 155-160 | 38 | 100 |
| | 160-165 | 24 | 124 |
| | 165-170 | 16 | 140 |
| | 170-175 | 12 | 152 |
| | 175-180 | 8 | 160 |
| | | $\Sigma f = 160$ | |

We have to plot (145, 12), (150, 32), (155, 62), (160, 100), (165, 124), (170, 140), (175, 152) and (180, 160).



(i) Using graph,

$N = 160$ (even)

∴ Median = $\left(\frac{160}{2}\right)^{\text{th}}$ term = 80th term

Now, we shall construct a horizontal line at cumulative frequency = 80 :

Intersecting the ogive at (157.5, 80),

Hence, median height = 157.5 cm.

Ans.

$$\begin{aligned} \text{(ii) Lower quartile } (Q_1) &= \left(\frac{N}{4}\right)^{\text{th}} \text{ term} \\ &= \left(\frac{160}{4}\right)^{\text{th}} \text{ term} \\ &= 40^{\text{th}} \text{ term} = 151.25 \end{aligned}$$

$$\begin{aligned} \text{Upper quartile } (Q_3) &= \left(\frac{3N}{4}\right)^{\text{th}} \text{ term} \\ &= \left(\frac{3 \times 160}{4}\right)^{\text{th}} \text{ term} \\ &= 120^{\text{th}} \text{ term} = 164.25 \end{aligned}$$

$$\begin{aligned} \therefore \text{ Interquartile range } &= Q_3 - Q_1 \\ &= 164.25 - 151.25 \\ &= 13 \end{aligned}$$

Ans.

(iii) The number of students whose height is above 172 cm

$$= 160 - 144 = 16 \quad \text{Ans.}$$

Solution 11.

(a) Given, PQ = 24 cm, QR = 7 cm, and $\angle PQR = 90^\circ$.

Construction : Draw $OM \perp QR$ and $ON \perp PQ$

As, $OM \perp QR$ and $ON \perp PQ$:

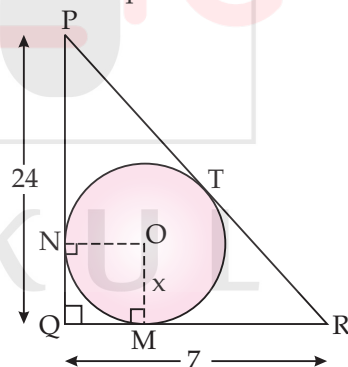
(Tangents and radius are perpendicular to each other)

and $OM = ON$

(Radius)

and $QM = QN$ (Tangents from an external point)

∴ QMON is a square.



$$\Rightarrow QM = OM = ON = QN = x \text{ cm (say)}$$

So,

$$MR = (7 - x) \text{ cm}$$

$$PN = (24 - x) \text{ cm}$$

$$PT = PN = 24 - x$$

and,

$$MR = RT = 7 - x$$

(Tangents from an external point)

⇒

$$PR = PT + RT$$

$$= 24 - x + 7 - x = 31 - 2x$$

PQ = 24 cm, QR = 7 cm, $\angle PQR = 90^\circ$ (Given)

Now, in ΔPQR

$$PR^2 = PQ^2 + QR^2$$

(by Pythagoras theorem)

$$= 24^2 + 7^2$$

$$= 576 + 49 = 625$$

$$\Rightarrow PR = 25 \text{ cm}$$

$$\Rightarrow 31 - 2x = 25$$

$$\Rightarrow 2x = 31 - 25$$

$$\Rightarrow 2x = 6$$

$$\Rightarrow x = 3 \text{ cm}$$

\therefore Radius of the inscribed circle is 3 cm.

Ans.

(b)

| x | f | cf |
|-----|-----|------|
| 10 | 1 | 1 |
| 11 | 4 | 5 |
| 12 | 7 | 12 |
| 13 | 5 | 17 |
| 14 | 9 | 26 |
| 15 | 3 | 29 |

$$\Rightarrow \text{Mode} = 14$$

(Since 9 is highest frequency)

Now, $N = 29$ (odd)

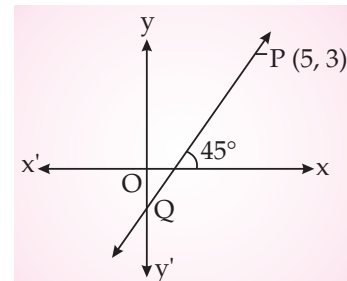
$$\therefore \text{Median} = \left(\frac{n+1}{2} \right)^{\text{th}} \text{ value}$$

$$= \left(\frac{29+1}{2} \right)^{\text{th}} \text{ value}$$

$$= 15^{\text{th}} \text{ value} = 13$$

\therefore Mode = 14 and Median = 13. Ans.

$$m = \tan \theta = \tan 45^\circ$$



\therefore Slope of the line

$$m = 1$$

Ans.

(ii) Equation of line PQ,

where $x_1 = 5, y_1 = 3$ and $m = 1$

$$y - y_1 = m(x - x_1)$$

$$y - 3 = 1(x - 5)$$

$$y - 3 = x - 5$$

$$\Rightarrow x - y - 2 = 0$$

Ans.

(iii) Equation of line PQ is

$$x - y - 2 = 0$$

$$\text{Put } x = 0$$

[Since, at Q coordinates are $(0, y)$]

$$-y - 2 = 0$$

$$\Rightarrow y = -2$$

So, coordinates of Q $(0, -2)$.

Ans.

••

GURUKUL

QUESTIONS

SECTION—A (40 Marks)

(Attempt **all** questions from this Section)

Question 1.

- (a) Find the value of 'k' if $(x - 2)$ is a factor of :

$$x^3 + 2x^2 - kx + 10$$

Hence, determine whether $(x + 5)$ is also a factor. [3]

- (b) If $A = \begin{bmatrix} 3 & 5 \\ 4 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 \\ 4 \end{bmatrix}$, is the product AB possible? Give a reason. If yes, find AB . [3]

- (c) Mr. Kumar borrowed ₹ 15,000 for two years. The rate of interest for the two successive years are 8% and 10% respectively. If he repays ₹ 6,200 at the end of the first year, find the outstanding amount at the end of the second year. [4]

Question 2.

- (a) From a pack of 52 playing cards all cards whose numbers are multiples of 3 are removed. A card is now drawn at random.

What is the probability that the card drawn is :

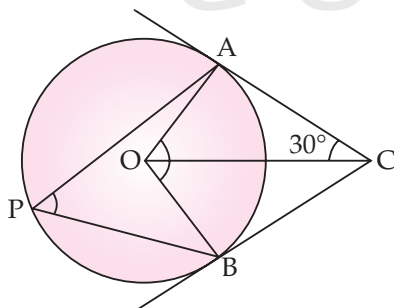
- (i) a face card (King, Jack or Queen)
(ii) an even numbered red card?

- (b) Solve the following equation :

$$x - \frac{18}{x} = 6. \text{ Give your answer correct to two significant figures. [3]}$$

- (c) In the given figure O is the centre of the circle. Tangents at A and B meet at C.

If $\angle ACO = 30^\circ$, find



(i) $\angle BCO$

(ii) $\angle AOB$

(iii) $\angle APB$

[4]

** Answer is not given due to change in the present syllabus.

Question 3.

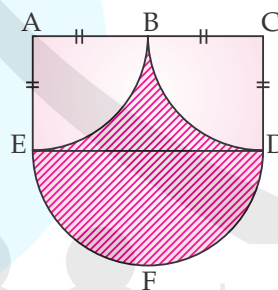
- (a) Ahmed has a recurring deposit account in a bank. He deposits ₹ 2,500 per month for 2 years. If he gets ₹ 66,250 at the time of maturity, find :

(i) The interest paid by the bank

(ii) The rate of interest. [3]

- (b) Calculate the area of the shaded region, if the diameter of the semi-circle is equal to 14 cm. [3]

(Take $\pi = \frac{22}{7}$)



- (c) ABC is a triangle and G (4, 3) is the centroid of the triangle. If $A = (1, 3)$, $B = (4, b)$ and $C = (a, 1)$, find 'a' and 'b'.

Find the length of side BC. [4]

Question 4.

- (a) Solve the following inequation and represent the solution set on the number line $2x - 5 \leq 5x + 4 < 11$, where $x \in I$, I is a set of integers. [3]

- (b) Evaluate without using trigonometric tables. [3]

$$2\left(\frac{\tan 35^\circ}{\cot 55^\circ}\right)^2 + \left(\frac{\cot 55^\circ}{\tan 35^\circ}\right)^2 - 3\left(\frac{\sec 40^\circ}{\operatorname{cosec} 50^\circ}\right)$$

- (c) A Mathematics aptitude test of 50 students was recorded as follows :

| Marks | No. of Students |
|--------|-----------------|
| 50-60 | 4 |
| 60-70 | 8 |
| 70-80 | 14 |
| 80-90 | 19 |
| 90-100 | 5 |

Draw a histogram for the above data using a graph paper and locate the mode. [4]

SECTION—B (40 Marks)(Attempt any **four** questions from this Section)**Question 5.**

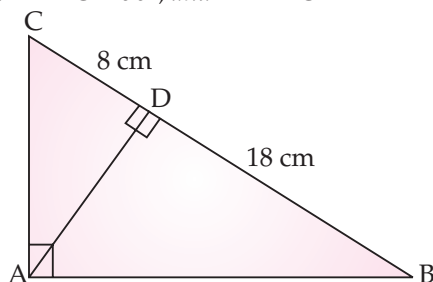
- (a) A manufacturer sells a washing machine to a wholesaler for ₹ 15,000. The wholesaler sells it to a trader at a profit of ₹ 1,200 and the trader in turn sells it to a consumer at a profit of ₹ 1,800. If the rate of VAT is 8% find,**
- (i) The amount of VAT received by the State Government on the sale of this machine from the manufacturer and the wholesaler.
- (ii) The amount that the consumer pays for the machine. [3]
- (b) A solid cone of radius 5 cm and height 8 cm is melted and made into small spheres of radius 0.5 cm. Find the number of spheres formed. [3]
- (b) Mr. Chaudhary opened a Saving's Bank Account at State Bank of India on 1st April, 2007. The entries of one year as shown in his pass book are given below : **

| Date | Particulars | Withdrawals (in ₹) | Deposits (in ₹) | Balance (in ₹) |
|------------------|-------------|--------------------|-----------------|----------------|
| 1st April, 2007 | By Cash | — | 8550-00 | 8550-00 |
| 12th April, 2007 | To Self | 1200-00 | — | 7350-00 |
| 24th April, 2007 | By Cash | — | 4550-00 | 11900-00 |
| 8th July, 2007 | By Cheque | — | 1500-00 | 13400-00 |
| 10th Sept., 2007 | By Cheque | — | 3500-00 | 16900-00 |
| 17th Sept., 2007 | To Cheque | 2500-00 | — | 14400-00 |
| 11th Oct., 2007 | By Cash | — | 800-00 | 15200-00 |
| 6th Jan., 2008 | To Self | 2000-00 | — | 13200-00 |
| 9th March, 2008 | By Cheque | — | 950-00 | 14150-00 |

If the bank pays interest at the rate of 5% per annum, find the interest paid on 1st April, 2008. Give your answer correct to the nearest rupee. [5]

Question 7.

- (a) Using componendo and dividendo, find the value of x if
- $$\frac{\sqrt{3x+4} + \sqrt{3x-5}}{\sqrt{3x+4} - \sqrt{3x-5}} = 9. \quad [3]$$
- (b) If $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 4 & -2 \\ -1 & 3 \end{bmatrix}$ and I is the identity matrix of the same order and A^t is the transpose of matrix A , find $A^t \cdot B + BI$. [3]
- (c) In the following figure ABC is a right angled triangle with $\angle BAC = 90^\circ$, and $AD \perp BC$.



** Answer is not given due to change in the present syllabus.

- (c) ABCD is a parallelogram where $A(x, y)$, $B(5, 8)$, $C(4, 7)$ and $D(2, -4)$. Find
- (i) Coordinates of A
- (ii) Equation of diagonal BD. [4]

Question 6.

- (a) Use a graph paper to answer the following questions. (Take 1 cm = 1 unit on both axes) :
- (i) Plot $A(4, 4)$, $B(4, -6)$ and $C(8, 0)$, the vertices of a triangle ABC.
- (ii) Reflect ABC on the Y-axis and name it as $A'B'C'$.
- (iii) Write the coordinates of the images A' , B' and C' .
- (iv) Give a geometrical name for the figure $AA'C'B'$ BC.
- (v) Identify the line of symmetry of $AA'C'B'BC$.** [5]

- (i) Prove $\triangle ADB \sim \triangle CDA$.
- (ii) If $BD = 18$ cm, $CD = 8$ cm find AD .
- (iii) Find the ratio of the area of $\triangle ADB$ to area of $\triangle CDA$. [4]

Question 8.

- (a) (i) Using step-deviation method, calculate the mean marks of the following distribution.
- (ii) State the modal class. [5]

| Class interval | Frequency |
|----------------|-----------|
| 50-55 | 5 |
| 55-60 | 20 |
| 60-65 | 10 |
| 65-70 | 10 |
| 70-75 | 9 |
| 75-80 | 6 |
| 80-85 | 12 |
| 85-90 | 8 |

- (b) Marks obtained by 200 students in an examination are given below :

| Marks | Frequency |
|--------|-----------|
| 0-10 | 5 |
| 10-20 | 11 |
| 20-30 | 10 |
| 30-40 | 20 |
| 40-50 | 28 |
| 50-60 | 37 |
| 60-70 | 40 |
| 70-80 | 29 |
| 80-90 | 14 |
| 90-100 | 6 |

Draw an ogive for the given distribution taking 2 cm = 10 marks on one axis and 2 cm = 20 students on the other axis. Using the graph, determine :

- The median marks
- The number of students who failed if minimum marks required to pass is 40.
- If scoring 85 and more marks is considered as grade one, find the number of students who secured grade one in the examination.

Question 9.

- (a) Mr. Parekh invested ₹ 52,000 on ₹ 100 shares at a discount of ₹ 20 paying 8% dividend. At the end of one year he sells the shares at a premium of ₹ 20. Find :
- The annual dividend.
 - The profit earned including his dividend.
- (b) Draw a circle of radius 3.5 cm. Mark a point P outside the circle at a distance of 6 cm from the centre. Construct two tangents from P to the given circle. Measure and write down the length of one tangent. [3]
- (c) Prove that
 $(\operatorname{cosec} A - \sin A)(\sec A - \cos A) \sec^2 A = \tan A$. [4]

Question 10.

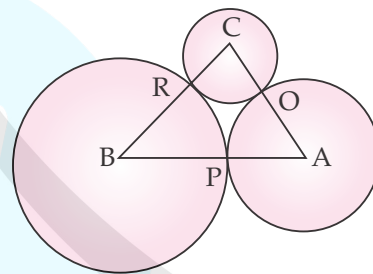
- (a) 6 is the mean proportion between two numbers x and y and 48 is the third proportional of x and y. Find the numbers. [3]

- (b) In what period of time will ₹ 12,000 yield ₹ 3,972 as compound interest at 10% per annum, if compounded on an yearly basis ?** [3]

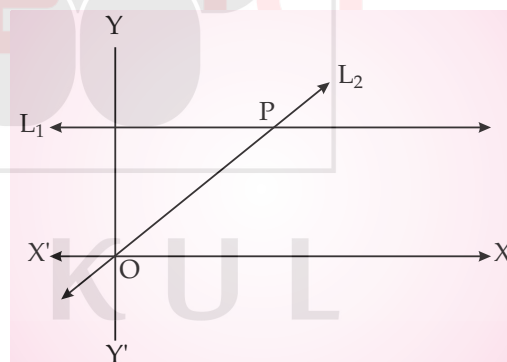
- (c) A man observes the angle of elevation of the top of a building to be 30° . He walks towards it in a horizontal line through its base. On covering 60 m the angle of elevation changes to 60° . Find the height of the building correct to the nearest metre. [4]

Question 11.

- (a) ABC is a triangle with AB = 10 cm, BC = 8 cm and AC = 6 cm (not drawn to scale). Three circles are drawn touching each other with the vertices as their centres. Find the radii of the three circles. [3]



- (b) ₹ 480 is divided equally among 'x' children. If the number of children were 20 more than each would have got ₹ 12 less. Find 'x'. [3]
- (c) Given equation of line L_1 is $y = 4$.
- Write the slope of line L_2 if L_2 is the bisector of angle O.
 - Write the coordinates of point P.
 - Find the equation of L_2 .



ANSWERS

SECTION—A

Solution 1.

- (a) Let, $f(x) = x^3 + 2x^2 - kx + 10$... (i)
 As $(x - 2)$ is a factor of $f(x)$
 Put $(x - 2) = 0 \Rightarrow x = 2$
 $\therefore f(2) = (2)^3 + 2(2)^2 - k(2) + 10$
 $\Rightarrow 0 = 8 + 8 - 2k + 10$

$$[As (x - 2) \text{ is a factor of } f(x) \Rightarrow f(2) = 0]$$

$$\Rightarrow 2k = 26$$

$$\Rightarrow k = \frac{26}{2}$$

$$= 13$$

$$\therefore f(x) = x^3 + 2x^2 - 13x + 10 \quad \dots (ii)$$

To determine whether $(x + 5)$ is a factor of $f(x)$ or not

Put $x + 5 = 0$ i.e., $x = -5$ in (ii)

We get, $f(-5) = (-5)^3 + 2(-5)^2 - 13(-5) + 10$
 $[k = 13]$

$$= -125 + 50 + 65 + 10 = 0$$

$\therefore (x + 5)$ is a factor of $f(x)$.

Ans.

(b) $A = \begin{bmatrix} 3 & 5 \\ 4 & -2 \end{bmatrix}_{2 \times 2}$ and $B = \begin{bmatrix} 2 \\ 4 \end{bmatrix}_{2 \times 1}$

The order of matrix A is 2×2 and matrix B is 2×1 .

The product AB is possible as the number of columns in A is equal to the number of rows in B.

Now, $AB = \begin{bmatrix} 3 & 5 \\ 4 & -2 \end{bmatrix} \begin{bmatrix} 2 \\ 4 \end{bmatrix}$

$$AB = \begin{bmatrix} 3 \times 2 + 5 \times 4 \\ 4 \times 2 + (-2) \times 4 \end{bmatrix}$$

$$AB = \begin{bmatrix} 26 \\ 0 \end{bmatrix}$$

Ans.

Solution 2.

(a) The numbers which are multiple of 3 in 52 playing cards are 3, 6 and 9 i.e., 3 cards of each denomination.

\therefore All cards whose numbers are multiples of 3 are
 $= 4 \times 3 = 12$ cards

$$\text{Remaining cards} = 52 - 12 = 40$$

[Jack, Queen and King of each denomination]

(i) No. of face cards = 12

$$P(\text{face card}) = \frac{12}{40} = \frac{3}{10}$$

Ans.

(ii) Again, even numbered cards are 2, 4, 8 and 10 each of heart (red) and diamond (red).

\therefore Total even numbered red cards = $4 \times 2 = 8$

$$P(\text{even numbered red card}) = \frac{8}{40} = \frac{1}{5}$$

Ans.

(b) $x - \frac{18}{x} = 6$

$$\Rightarrow \frac{x^2 - 18}{x} = 6$$

$$\Rightarrow x^2 - 18 = 6x$$

$$\text{or } x^2 - 6x - 18 = 0$$

Since middle term cannot be splitted.
 So compare with $ax^2 + bx + c = 0$

$$a = 1, b = -6, c = -18$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= \frac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(-18)}}{2 \times 1}$$

$$= \frac{6 \pm \sqrt{36 + 72}}{2} = \frac{6 \pm \sqrt{108}}{2}$$

$$= \frac{6 \pm \sqrt{6 \times 6 \times 3}}{2}$$

$$= \frac{6 \pm 6\sqrt{3}}{2}$$

$$= 3 \pm 3\sqrt{3} = 3 \pm 3(1.732)$$

$$= 3 \pm 5.196$$

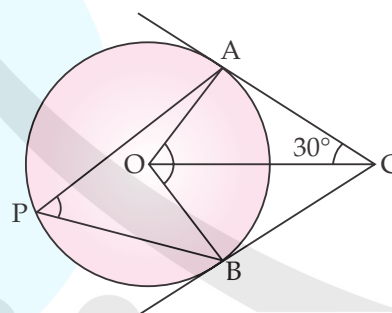
$$x = 3 + 5.196 \quad \text{or } x = 3 - 5.196$$

$$x = 8.196 \quad x = -2.196$$

$$x = 8.2 \text{ (2 sig. fig.) or } x = -2.2 \text{ (2 sig. fig.)}$$

Ans.

(c) Given, a circle with centre O. CA and CB are tangent to it. $\angle OAC = \angle OBC = 90^\circ$ and $\angle ACO = 30^\circ$.



(i) Since, $\triangle ACO \cong \triangle OBC = 30^\circ$ (By SSS)
 $(AC = BC, AO = OB \text{ and } OC \text{ is common})$

$$\therefore \angle ACO = \angle BCO = 30^\circ$$

Ans.

(ii) $\angle OAC = \angle OBC = 90^\circ$
 $\angle ACO = 30^\circ$ (given)

$$\angle AOC = \angle BOC (\because \triangle ACO \cong \triangle BOC)$$

$$\therefore \angle AOC = \angle BOC = 180^\circ - (90^\circ + 30^\circ)$$

$(\because \text{sum of the 3 angles of a } \triangle \text{ is } 180^\circ)$

$$\angle AOC = 180^\circ - 120^\circ$$

$$\angle AOC = 60^\circ$$

$$\therefore \angle AOB = \angle AOC + \angle BOC$$

$$= 60^\circ + 60^\circ$$

$$\angle AOB = 120^\circ$$

Ans.

(iii) $\angle APB = \frac{1}{2} \angle AOB$

$$= \frac{120^\circ}{2} = 60^\circ$$

Ans.

$(\because \text{Angle subtended at the remaining part of the circle is half the angle subtended at the centre.})$

Solution 3.

(a) (i) $P = ₹ 2500, n = 2$ years, i.e., 24 months

$$\text{Total deposited amount} = ₹ 2500 \times 24$$

$$= ₹ 60,000$$

$$\text{Maturity amount} = ₹ 66,250$$

∴ The interest paid by the bank

$$= ₹ (66,250 - 60,000)$$

$$= ₹ 6,250$$

Ans.

(ii)

$$I = \frac{P \times n(n+1)}{2 \times 12} \times \frac{r}{100}$$

$$6250 = \frac{2500 \times 24 \times 25}{2 \times 12} \times \frac{r}{100}$$

$$r = \frac{6250}{25 \times 25} = 10\% \text{ p.a.}$$

∴ Rate of interest is 10% p.a.

Ans.

(c) Let $A = (1, 3) = (x_1, y_1)$, $B = (4, b) = (x_2, y_2)$,
 $C = (a, 1) = (x_3, y_3)$ and $G = (4, 3) = (x, y)$

Coordinates of centroid

$$x = \frac{x_1 + x_2 + x_3}{3} \quad \text{and} \quad y = \frac{y_1 + y_2 + y_3}{3}$$

$$4 = \frac{1 + 4 + a}{3} \quad \text{and} \quad 3 = \frac{3 + b + 1}{3}$$

$$12 - 5 = a \quad \text{and} \quad 9 - 4 = b$$

$$a = 7 \quad \text{and} \quad b = 5$$

Ans.

Solution 4.

(a) $2x - 5 \leq 5x + 4 < 11, x \in I$

$$2x - 5 \leq 5x + 4 \quad | \quad 5x + 4 < 11$$

$$2x - 5x \leq 4 + 5 \quad | \quad 5x < 11 - 4$$

$$-3x \leq 9 \quad | \quad 5x < 7$$

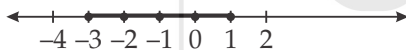
$$3x \geq -9 \quad | \quad x < \frac{7}{5}$$

$$x \geq -3$$

$$-3 \leq x \quad \dots(i) \quad | \quad x < 1\frac{2}{5} \quad \dots(ii)$$

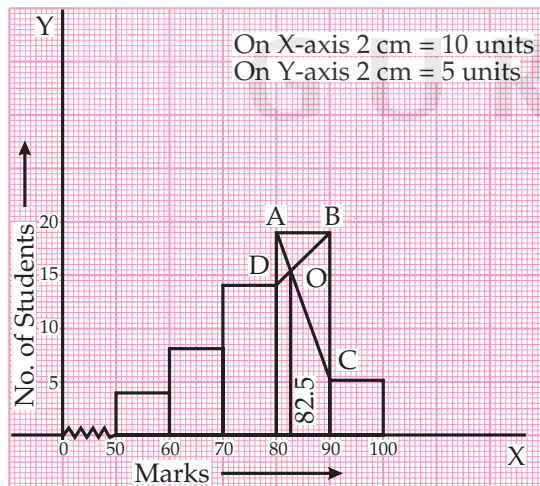
From (i) and (ii), $-3 \leq x < 1\frac{2}{5}, x \in I$

∴ Solution set = $\{-3, -2, -1, 0, 1\}$



Ans.

(c)



From the graph, the bar with the maximum height is of 80–90 interval. Join A to C and B to D. They

meet at O. Drop perpendicular from O on X-axis. It meets at 82.5.

∴ mode = 82.5

Ans.

SECTION—B

Solution 5.

(b) No. of spheres formed

$$= \frac{\text{Volume of given cone}}{\text{Volume of sphere of radius 0.5 cm}}$$

$$\left[\begin{array}{l} \text{Volume of cone} = \frac{1}{3}\pi r_1^2 h_1 \\ \text{Volume of sphere} = \frac{4}{3}\pi r_2^3 \end{array} \right]$$

$$= \frac{\frac{1}{3}\pi(5)^2 \times 8}{\frac{4}{3}\pi(0.5)^3} = \frac{25 \times 8}{4 \times 0.5 \times 0.5 \times 0.5}$$

$$= \frac{25 \times 2 \times 10 \times 10 \times 10}{5 \times 5 \times 5} = 400$$

Ans.

(c) Given, ABCD is a parallelogram, with $A(x, y)$, $B(5, 8)$, $C(4, 7)$ and $D(2, -4)$

(i) As diagonals of a parallelogram bisect each other.

∴ E is midpoint of BD as well as AC.

$$\text{Coordinates of E} = \left(\frac{x+4}{2}, \frac{y+7}{2} \right)$$

(Using coordinates of A and C)

$$\text{Coordinates of E} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$= \left(\frac{5+2}{2}, \frac{8-4}{2} \right)$$

(Using coordinates of B and D)

$$= \left(\frac{7}{2}, 2 \right)$$

$$\text{On comparing, } \frac{x+4}{2} = \frac{7}{2} \quad \text{and} \quad \frac{y+7}{2} = 2$$

$$\Rightarrow x = 3 \quad \text{and} \quad y = -3$$

∴ Coordinates of A are (3, -3).

Ans.

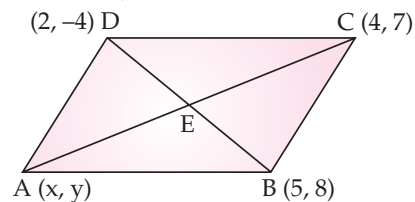
(ii) Equation of diagonal BD,

$$y - y_1 = \frac{y_2 - y_1}{x_2 - x_1} (x - x_1)$$

$$\Rightarrow y - 8 = \frac{-4 - 8}{2 - 5} (x - 5)$$

$$\Rightarrow y - 8 = \frac{-12}{-3} (x - 5)$$

$$\Rightarrow y - 8 = 4(x - 5)$$



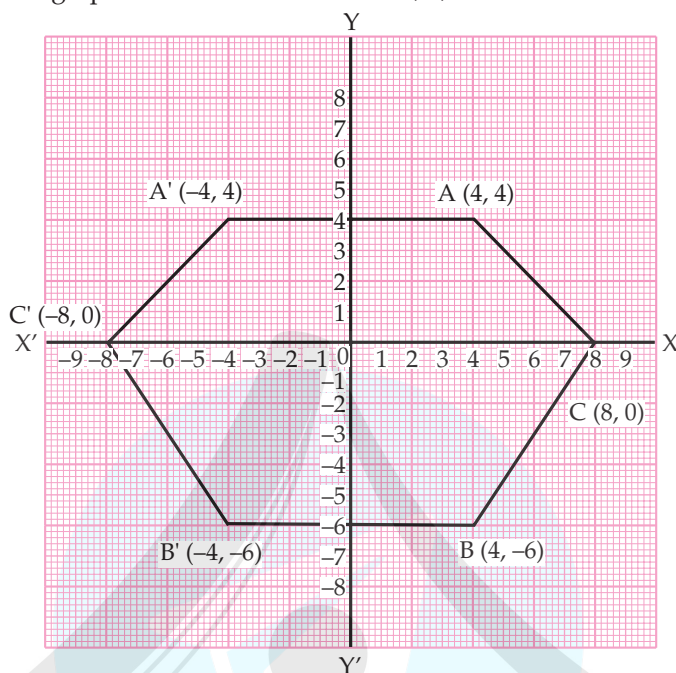
$$\Rightarrow y - 8 = 4x - 20$$

$$\Rightarrow 4x - y - 12 = 0$$

Ans.

Solution 6.

(a) (i) and, (ii) see the given graph.

Ans.(iii) $A'(-4, 4)$, $B'(-4, -6)$, $C'(-8, 0)$ **Ans.**(iv) $AA'C'B'BC$ is a hexagon.**Ans.****Solution 7.**(a) Given, $\frac{\sqrt{3x+4} + \sqrt{3x-5}}{\sqrt{3x+4} - \sqrt{3x-5}} = \frac{9}{1}$

Using componendo and dividendo

$$\frac{\sqrt{3x+4} + \sqrt{3x-5} + \sqrt{3x+4} - \sqrt{3x-5}}{\sqrt{3x+4} + \sqrt{3x-5} - \sqrt{3x+4} + \sqrt{3x-5}} = \frac{9+1}{9-1} = \frac{10}{8} = \frac{5}{4}$$

$$\frac{2\sqrt{3x+4}}{2\sqrt{3x-5}} = \frac{5}{4}$$

$$\Rightarrow \frac{3x+4}{3x-5} = \frac{25}{16}$$

(Squaring both sides)

$$\Rightarrow 48x + 64 = 75x - 125$$

$$\Rightarrow 75x - 48x = 125 + 64$$

$$27x = 189$$

$$\Rightarrow x = \frac{189}{27} = 7$$

(b) Given,

$$A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}, B = \begin{bmatrix} 4 & -2 \\ -1 & 3 \end{bmatrix}$$

and

$$I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

$$A^t = \begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix}$$

$$A^t.B = \begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix} \begin{bmatrix} 4 & -2 \\ -1 & 3 \end{bmatrix}$$

$$A^t.B = \begin{bmatrix} 8-1 & -4+3 \\ 20-3 & -10+9 \end{bmatrix}$$

$$A^t.B = \begin{bmatrix} 7 & -1 \\ 17 & -1 \end{bmatrix} \quad \dots(i)$$

$$BI = \begin{bmatrix} 4 & -2 \\ -1 & 3 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

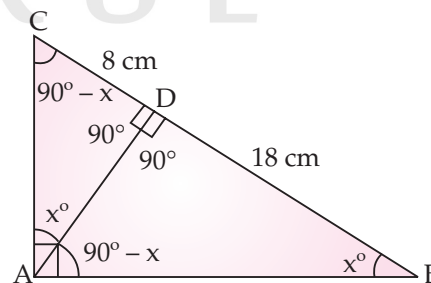
$$BI = \begin{bmatrix} 4 & -2 \\ -1 & 3 \end{bmatrix} \quad \dots(ii)$$

From equation (i) and (ii)

$$A^t.B + BI = \begin{bmatrix} 7 & -1 \\ 17 & -1 \end{bmatrix} + \begin{bmatrix} 4 & -2 \\ -1 & 3 \end{bmatrix}$$

$$A^t.B + BI = \begin{bmatrix} 7+4 & -1-2 \\ 17-1 & -1+3 \end{bmatrix}$$

$$= \begin{bmatrix} 11 & -3 \\ 16 & 2 \end{bmatrix}$$

Ans.(c) (i) Given, $\triangle ABC$ right angled at A, $AD \perp BC$, $BD = 18$ cm and $CD = 8$ cm.Let $\angle ABD = x$ So, $\angle ACD = \angle ACB = 90 - x \quad \dots(i)$
($\because \angle BAC = 90^\circ$)Also $\angle BAD = 90 - x \quad \dots(ii)$
($\because \angle ADB = 90^\circ$)

Now, in $\triangle ADB$ and $\triangle CDA$

$$\begin{aligned}\angle ADB &= \angle CDA \\ &= 90^\circ \text{ each} \quad (\text{Given})\end{aligned}$$

From (i) and (ii),

$$\angle BAD = \angle ACD = 90 - x$$

$\therefore \triangle ADB \sim \triangle CDA$ (By AA axiom)
Hence Proved.

(ii) $\therefore \triangle ADB \sim \triangle CDA$ [Proved in (i)]
 $\therefore \frac{AD}{BD} = \frac{CD}{AD}$

(Corresponding sides of similar triangles are proportional)

$$\text{or } AD^2 = BD \times CD \Rightarrow AD^2 = 18 \times 8$$

(BD = 18, CD = 8, given)

$$\Rightarrow AD^2 = 144$$

$$AD = 12 \text{ cm}$$

$$\text{(iii) } \frac{\text{Area of } \triangle ADB}{\text{Area of } \triangle CDA} = \frac{BD^2}{AD^2}$$

[Area theorem of similar triangles]

$$\begin{aligned}&= \frac{18^2}{12^2} = \frac{18 \times 18}{12 \times 12} \\ &= \frac{3 \times 3}{2 \times 2} = \frac{9}{4}\end{aligned}$$

$$\Rightarrow \text{Area } (\triangle ADB) : \text{Area } (\triangle CDA) = 9 : 4.$$

Solution 8.

(a) (i)

| C.I. | f | x | $u = \frac{x-A}{h}$ where $h = 5$ | fu |
|-------|-----------------|-------------|--------------------------------------|------------------|
| 50-55 | 5 | 52.5 | -3 | -15 |
| 55-60 | 20 | 57.5 | -2 | -40 |
| 60-65 | 10 | 62.5 | -1 | -10 |
| 65-70 | 10 | 67.5 = A | 0 | 0 |
| 70-75 | 9 | 72.5 | 1 | 9 |
| 75-80 | 6 | 77.5 | 2 | 12 |
| 80-85 | 12 | 82.5 | 3 | 36 |
| 85-90 | 8 | 87.5 | 4 | 32 |
| | $\Sigma f = 80$ | | | $\Sigma fu = 24$ |

$$\text{Mean } (\bar{X}) = A + \frac{\Sigma fu}{\Sigma f} \times h$$

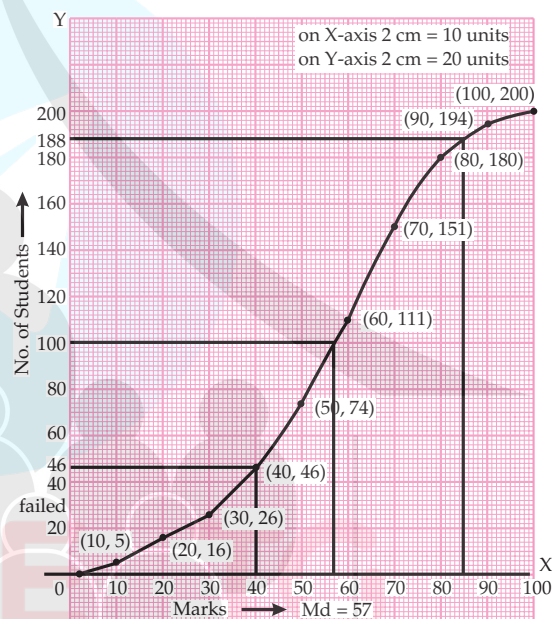
(h = length of C.I. = 5)

$$\begin{aligned}&= 67.5 + \frac{24}{80} \times 5 = 67.5 + 1.5 \\ &= 69\end{aligned}$$

(ii) Modal class = 55-60
(Class with highest frequency) **Ans.**

(b)

| Marks | f | c.f. |
|--------|-----|------|
| 0-10 | 5 | 5 |
| 10-20 | 11 | 16 |
| 20-30 | 10 | 26 |
| 30-40 | 20 | 46 |
| 40-50 | 28 | 74 |
| 50-60 | 37 | 111 |
| 60-70 | 40 | 151 |
| 70-80 | 29 | 180 |
| 80-90 | 14 | 194 |
| 90-100 | 6 | 200 |



(i) From the graph :

$$\begin{aligned}\text{Median} &= \left(\frac{n}{2}\right)^{\text{th}} \text{ observation} \\ &= \left(\frac{200}{2}\right)^{\text{th}} \text{ observation} \\ &= 100^{\text{th}} \text{ observation} \\ &= 57\end{aligned}$$

Ans.

On graph, draw a perpendicular from X-axis at 40 marks to the ogive. The point from where line touches ogive drop a perpendicular on the Y-axis. The point where it touches Y-axis is the answer.

(ii) No. of students who failed = 46 **Ans.**

(iii) Number of students who secured grade one = $200 - 188 = 12$ **Ans.**

Solution 9.

(a) (i) Given, investment = ₹ 52,000

Nominal value of one share = ₹ 100

Market value of one share

$$= ₹ 100 - 20 = ₹ 80$$

$$\begin{aligned}\text{Number of shares} &= \frac{\text{Investment}}{\text{Market value}} \\ &= \frac{52,000}{80} = 650\end{aligned}$$

$$\begin{aligned}\text{Dividend on one share} &= \text{Rate of Dividend} \\ &\times \text{Nominal value of one share} \\ &= \frac{8}{100} \times 100 = ₹ 8\end{aligned}$$

$$\begin{aligned}\therefore \text{Annual dividend} &= \text{No. of shares} \\ &\times \text{Dividend on one share} \\ &= 650 \times ₹ 8 = ₹ 5,200 \quad \text{Ans.}\end{aligned}$$

(ii) Market value of 1 share

$$= ₹ 100 + ₹ 20 = ₹ 120$$

Selling price of 650 shares

$$= ₹ 120 \times 650 = ₹ 78,000$$

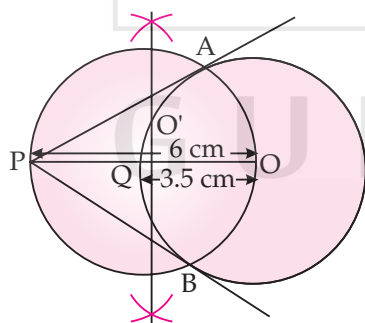
Profit earned including his dividend

$$\begin{aligned}&= \text{Selling value} \\ &\quad + \text{Dividend} - \text{Investment} \\ &= ₹ 78,000 + ₹ 5,200 \\ &\quad - ₹ 52,000 \\ &= ₹ 31,200 \quad \text{Ans.}\end{aligned}$$

(b) Steps of construction :

1. Taking O as centre and OQ as radius equals 3.5 cm, draw a circle.
 2. Mark a point P from O at a distance of 6 cm.
 3. Draw perpendicular bisector of OP.
 4. Draw a circle with O' as a centre which cuts the another circle at points A and B.
 5. Join PA and PB.
- PA and PB are the required tangents

$$PA = PB = 4.8 \text{ cm}$$



(c) To prove,

$$(\operatorname{cosec} A - \sin A)(\sec A - \cos A) \cdot \sec^2 A = \tan A$$

$$\text{L.H.S.} = (\operatorname{cosec} A - \sin A)(\sec A - \cos A) \cdot \sec^2 A$$

$$\begin{aligned}&= \left(\frac{1}{\sin A} - \sin A \right) \cdot \left(\frac{1}{\cos A} - \cos A \right) \\ &\quad \cdot \frac{1}{\cos^2 A}\end{aligned}$$

$$\left[\sec A = \frac{1}{\cos A}, \operatorname{cosec} A = \frac{1}{\sin A} \right]$$

$$= \left(\frac{1 - \sin^2 A}{\sin A} \right) \times \left(\frac{1 - \cos^2 A}{\cos A} \right) \times \frac{1}{\cos^2 A}$$

$$= \frac{\cos^2 A}{\sin A} \times \frac{\sin^2 A}{\cos A} \times \frac{1}{\cos^2 A}$$

$$\left[\begin{aligned} 1 - \sin^2 A &= \cos^2 A \\ 1 - \cos^2 A &= \sin^2 A \end{aligned} \right]$$

$$= \frac{\sin A}{\cos A} = \tan A$$

$$= \text{R.H.S.}$$

Hence Proved.

Solution 10.

(a) Given, 6 is mean proportional between x and y . $\Rightarrow x, 6, y$ are in continued proportion

$$\frac{x}{6} = \frac{6}{y}$$

$$\Rightarrow xy = 36$$

$$\Rightarrow x = \frac{36}{y}$$

...(i)

Also, 48 is third proportional of x and y (Given) $\Rightarrow x, y, 48$ are in continued proportion.

$$\frac{x}{y} = \frac{y}{48}$$

$$\Rightarrow y^2 = 48x$$

...(ii)

$$\text{From (i)} \quad y^2 = 48 \times \frac{36}{y}$$

$$\Rightarrow y^3 = 48 \times 36$$

Taking cube root on both sides

$$\Rightarrow \sqrt[3]{y^3} = \sqrt[3]{12 \times 12 \times 12}$$

$$\Rightarrow y = 12$$

$$\text{And} \quad x = \frac{36}{y}$$

$$= \frac{36}{12}$$

$$= 3$$

 \therefore The numbers are 3 and 12.

Ans.

(c) Let, the height of the building be h In $\triangle BCD$,

$$\frac{h}{x} = \tan 60^\circ$$

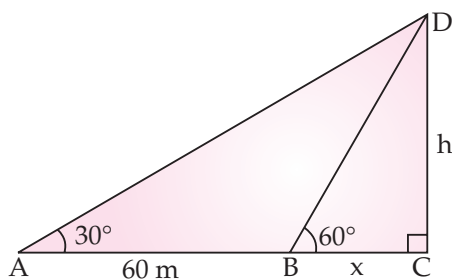
$$\Rightarrow \frac{h}{x} = \sqrt{3}$$

$$\Rightarrow h = \sqrt{3}x$$

...(i)

In $\triangle ACD$,

$$\frac{h}{x+60} = \tan 30^\circ$$



$$\Rightarrow \frac{h}{x+60} = \frac{1}{\sqrt{3}}$$

$$\Rightarrow h\sqrt{3} = x+60$$

$$\Rightarrow \sqrt{3}x \sqrt{3} = x+60$$

$$\Rightarrow 3x - x = 60$$

$$\Rightarrow 2x = 60$$

$$\Rightarrow x = 30 \text{ m}$$

Now, from (i)

$$h = \sqrt{3}x$$

$$h = 30 \times \sqrt{3}$$

$$= 30 \times 1.732$$

$$\text{Height} = 51.96 \text{ m} = 52 \text{ m}$$

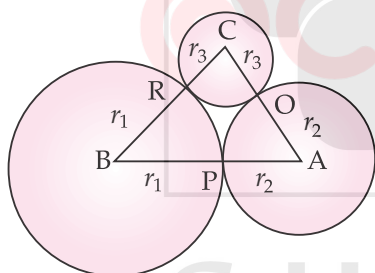
(rounded off)

The height of the building is 52 m.

Solution 11.

(a) Given, AB = 10 cm, BC = 8 cm, AC = 6 cm

Let the radii of three circles be r_1 , r_2 and r_3 (shown in fig.)



$$\text{Now, } AB = r_1 + r_2 = 10 \quad \dots(i)$$

$$AC = r_2 + r_3 = 6 \quad \dots(ii)$$

$$BC = r_3 + r_1 = 8 \quad \dots(iii)$$

Adding equations (i), (ii) and (iii)

$$2(r_1 + r_2 + r_3) = 10 + 6 + 8 = 24$$

$$r_1 + r_2 + r_3 = 12 \quad \dots(iv)$$

Subtract (i) from (iv)

$$\Rightarrow r_2 = 12 - 10 = 2 \text{ cm}$$

Subtract (ii) from (iv)

$$\Rightarrow r_1 = 12 - 6 = 6 \text{ cm}$$

Subtract (iii) from (iv)

$$\Rightarrow r_3 = 12 - 8 = 4 \text{ cm}$$

Therefore, the radius of 3 circles are 2 cm, 6 cm and 4 cm.

Ans.

(b) Let, number of children be x

$$\text{Share of each child} = ₹ \frac{480}{x}$$

$$\text{Now, number of children} = x + 20$$

$$\therefore \text{share of each child} = ₹ \frac{480}{x+20}$$

Now, According to the question

$$\frac{480}{x} - \frac{480}{x+20} = 12$$

$$\Rightarrow \frac{480x + 9600 - 480x}{x(x+20)} = 12$$

$$\Rightarrow 9600 = 12x(x+20)$$

$$\Rightarrow 800 = x^2 + 20x$$

$$\Rightarrow x^2 + 20x - 800 = 0$$

$$\Rightarrow x^2 + 40x - 20x - 800 = 0$$

$$\Rightarrow x(x+40) - 20(x+40) = 0$$

$$\Rightarrow (x-20)(x+40) = 0$$

$$\text{Either } x = 20$$

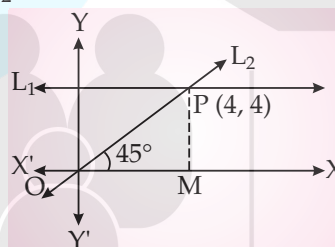
$$\text{or } x = -40 \text{ (not possible)}$$

\therefore Number of children is 20.

Ans.

(c) Equation of L_1 is $y = 4$ (given)

(i) As L_2 is bisector of $\angle O$ and $\angle O = 90^\circ$



$\Rightarrow L_2$ is inclined at an angle of 45° with XX'

$$\therefore \text{Slope of } L_2 = m = \tan 45^\circ = 1$$

Ans.

$$(ii) \text{ Slope of } L_2 = \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 0}{x - 0}$$

$$\text{Where, } x_1 = 0, y_1 = 0$$

$$x_2 = x, y_2 = y \text{ (eq. of } L_1 \text{ is } y = 4)$$

$$\text{Slope of } L_2 = 1 \quad \text{(using (i))}$$

$$\Rightarrow 1 = \frac{4}{x}$$

$$\Rightarrow x = 4$$

So, coordinates of P are (4, 4)

Ans.

(iii) Equation of L_2

$$y - 4 = 1(x - 4)$$

(L_2 pass through (4,4)
and has slope $m = 1$)

$$y - 4 = x - 4$$

$$\text{or } x = y$$

$$\text{or } x - y = 0$$

Ans.

••

QUESTIONS

(Two Hours)

Answer to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answer.

Section I is compulsory. Attempt **any four** question from **Section II**.

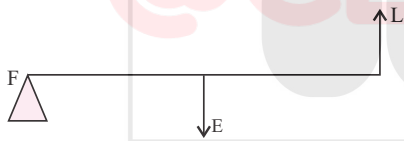
The intended marks for questions or parts of questions are given in brackets [].

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

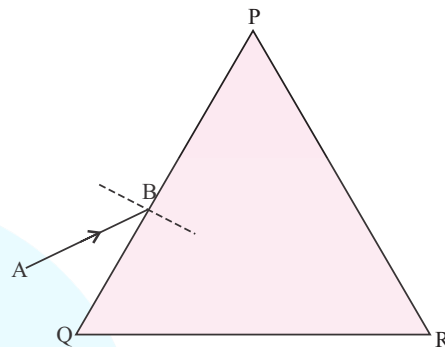
- (a) (i) Define moment of force. [2]
(ii) Write the relationship between the SI and CGS unit of moment of force.
- (b) Define a kilowatt hour. How is it related to joule? [2]
- (c) A satellite revolves around a planet in a circular orbit. What is the work done by the satellite at any instant? Give a reason. [2]
- (d) (i) Identify the class of the lever shown in the diagram below : [2]



- (ii) How is it possible to increase the M. A. of the above lever without increasing its length? [2]
- (e) Give one example of each when : [2]
(i) Chemical energy changes into electrical energy.
(ii) Electrical energy changes into sound energy.

Question 2.

- (a) A crane 'A' lifts a heavy load in 5 seconds, whereas another crane 'B' does the same work in 2 seconds. Compare the power of crane 'A' to that of crane 'B'. [2]
- (b) A ray of light falls normally on a rectangular glass slab. [2]
Draw a ray diagram showing the path of the ray till it emerges out of the slab.
- (c) Complete the path of the monochromatic light ray AB incident on the surface PQ of the equilateral glass prism PQR till it emerges out of the prism due to refraction. [2]



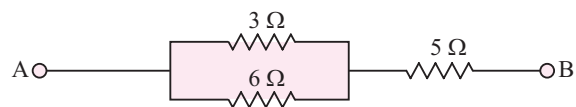
- (d) Where should an object be placed in front of a convex lens in order to get : [2]
(i) an enlarged real image
(ii) enlarged virtual image?
- (e) A pond appears to be 2.7 m deep. If the refractive index of water is $\frac{4}{3}$, find the actual depth of the pond. [2]

Question 3.

- (a) The wave lengths for the light of red and blue colours are nearly 7.8×10^{-7} m and 4.8×10^{-7} m respectively. [2]
(i) Which colour has the greater speed in a vacuum?
(ii) Which colour has a greater speed in glass?
- (b) Draw a graph between displacement from mean position and time for a body executing free vibration in a vacuum. [2]
- (c) A sound wave travelling in water has wavelength 0.4 m. [2]
Is this wave audible in air? (The speed of sound in water = 1400 ms^{-1})
- (d) Why does stone lying in the sun get heated up much more than water lying for the same duration of time? [2]
- (e) Why is it not advisable to use a piece of copper wire as fuse wire in an electric circuit? [2]

Question 4.

- (a) Calculate the total resistance across AB : [2]



- (b) Two metallic blocks P and Q having masses in ratio 2 : 1 are supplied with the same amount of heat. If

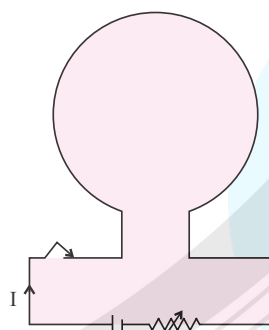
their temperatures rise by same degree, compare their specific heat capacities. [2]

- (c) When a current carrying conductor is placed in a magnetic field, it experiences a mechanical force. What should be the angle between the magnetic field and the length of the conductor so that the force experienced is : [2]

- (i) Zero
(ii) Maximum ?

- (d) A nucleus ${}_{84}\text{X}^{202}$ of an element emits an alpha particle followed by a beta particle. The final nucleus is ${}_a\text{Y}^b$. Find a and b . [2]

- (e) The diagram below shows a loop of wire carrying current I : [2]



- (i) What is the magnetic polarity of the loop that faces us ?

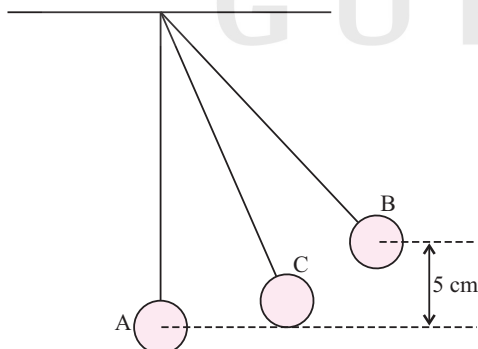
- (ii) With respect to the diagram how can we increase the strength of the magnetic field produced by this loop ?

SECTION-II (40 Marks)

Attempt any four questions from this Section

Question 5.

- (a) The figure below shows a simple pendulum of mass 200 g. It is displaced from the mean position A to the extreme position B. The potential energy at the position A is zero. At the position B the pendulum bob is raised by 5 m. [3]



- (i) What is the potential energy of the pendulum at the position B ?
(ii) What is the total mechanical energy at point C ?

- (iii) What is the speed of the bob at the position A when released from B ?

(Take $g = 10 \text{ ms}^{-2}$ and there is no loss of energy.)

- (b) (i) With reference to the direction of action, how does a centripetal force differ from a centrifugal force during uniform circular motion ? [3]

- (ii) Is centrifugal force the force of reaction of centripetal force ?

- (iii) Compare the magnitudes of centripetal and centrifugal force.

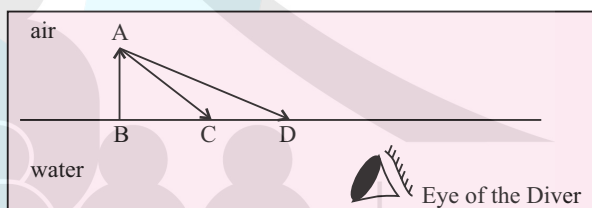
- (c) A block and tackle system of pulleys has velocity ratio 4. [4]

- (i) Draw a neat, labelled diagram of the system indicating clearly the points of application and direction of load and effort.

- (ii) What will be its V. R. if the weight of the movable block is doubled ?

Question 6.

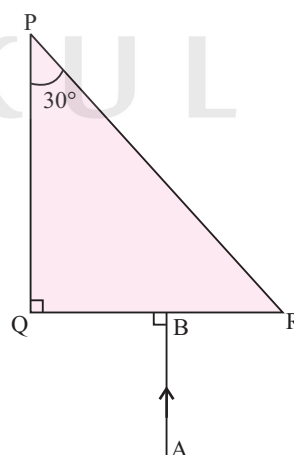
- (a) A diver in water looks obliquely at an object AB in air. [3]



- (i) Does the object appear taller, shorter or of the same size to the diver ?

- (ii) Show the path of two rays AC and AD starting from the tip of the object as it travels towards the diver in water and hence obtain the image of the object.

- (b) Complete the path of the ray AB through the glass prism in PQR till it emerges out of the prism. Given the critical angle of the glass as 42° . [3]



- (c) A lens of focal length 20 cm forms an inverted image at a distance 60 cm from the lens. [4]

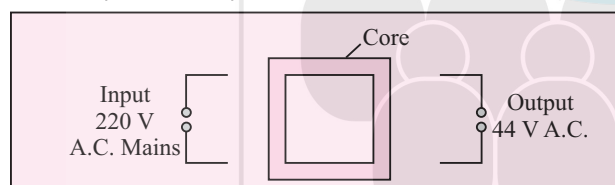
- (i) Identify the lens.
- (ii) How far is the lens present in front of the object ?
- (iii) Calculate the magnification of the image.

Question 7.

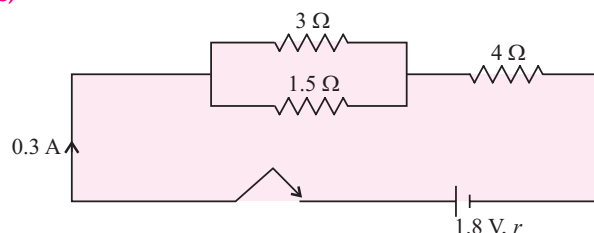
- (a) Give reasons for the following : [3]
During the day :
 - (i) Clouds appear white.
 - (ii) Sky appears blue.
- (b) (i) Name the system which enables us to locate underwater objects by transmitting ultrasonic waves and detecting the reflecting impulse. [3]
(ii) What are acoustically measurable quantities related to pitch and loudness ?
- (c) (i) When a tuning fork [vibrating] is held close to ear, one hears a faint hum. The same [vibrating tuning fork] is held such that its stem is in contact with the table surface, then one hears a loud sound. Explain. [4]
(ii) A man standing in front of a vertical cliff fires a gun. He hears the echo after 3.5 seconds. On moving closer to the cliff by 84 m, he hears the echo after 3 seconds. Calculate the distance of the cliff from the initial position of the man.

Question 8.

- (a) The diagram below shows the core of a transformer and its input and output connections. [3]



- (i) State the material used for the core.
- (ii) Copy and complete the diagram of the transformer by drawing input and output coils.
- (b) (i) What are superconductors ? [3]
(ii) Calculate the current drawn by an appliance rated 110 W, 220 V when connected across 220 V supply.
(iii) Name a substance whose resistance decreases with the increase in temperature.

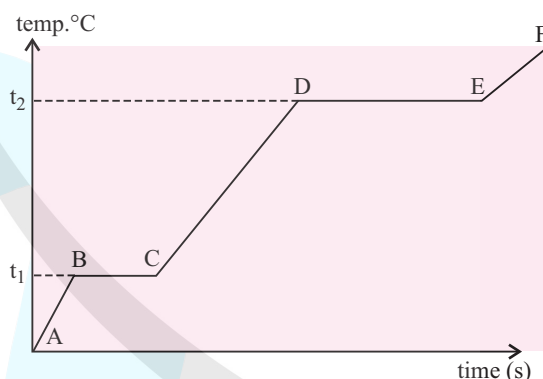


The diagram above shows three resistors connected across a cell of e.m.f. 1.8 V and internal resistance r . Calculate : [4]

- (i) Current through $3\ \Omega$ resistor.
- (ii) The internal resistance r .

Question 9.

- (a) (i) Define heat capacity of a substance. [3]
(ii) Write the SI unit of heat capacity.
(iii) What is the relationship between heat capacity and specific heat capacity of a substance ?
- (b) The diagram below shows the change of phases of a substance on a temperature vs time graph on heating the substance at a constant rate. [3]



- (i) Why is the slope of CD less than slope of AB ?
- (ii) What is the boiling and melting point of the substance ?
- (c) A piece of ice of mass 60 g is dropped into 140 g of water at 50°C . [4]
Calculate the final temperature of water when all the ice has melted.
(Assume no heat is lost to the surrounding)
Specific heat capacity of water = $4.2\ \text{Jg}^{-1}\text{K}^{-1}$
Specific latent heat of fusion of ice = $336\ \text{Jg}^{-1}$

Question 10.

- (a) (i) Draw a neat labeled diagram of a d.c. motor. [3]
(ii) Write any one use of a d.c. motor.
- (b) (i) Differentiate between nuclear fusion and nuclear fission. [3]
(ii) State one safety precaution in the disposal of nuclear waste.
- (c) An atomic nucleus A is composed of 84 protons and 128 neutrons. The nucleus A emits an alpha particle and is transformed into a nucleus B. [4]
(i) What is the composition of B ?
(ii) The nucleus B emits a beta particle and is transformed into a nucleus C. What is the composition of C ?
(iii) What is mass number of the nucleus A ?
(iv) Does the composition of C change if it emits gamma radiations ?

ANSWERS

SECTION-I

Answer 1.

- (a) (i) The turning effect of force on the body about an axis is due to the moment of force applied on the body and is equal to the product of the magnitude of the force and the perpendicular distance of the line of action of the force from the axis of rotation.

(ii) $1 \text{ Nm} = 10^7 \text{ dyn cm}$ or $1 \text{ dyn cm} = 10^{-7} \text{ Nm}$.

- (b) One kilowatt hour (kWh) is the energy spent or work done by a source of power 1 kW in 1 hour.

$$1 \text{ kWh} = 3.6 \times 10^6 \text{ J or } 3.6 \text{ MJ}$$

- (c) The work done by the satellite at any instant is zero because the force required (centripetal force) to go around the planet is perpendicular to the displacement at any instant of its motion.

- (d) (i) Class III lever.

(ii) Without increasing the length of the lever, its mechanical advantage can be increased by shifting the effort (E) towards the load (L), i.e., by decreasing the load arm.

- (e) (i) A dry cell in use.

(ii) Loud speaker.

Answer 2.

- (a) Let the work done in both case be x joule.

Crane A

$$W_1 = x \text{ Joule}$$

$$t_1 = 5 \text{ s}$$

$$P_A = \frac{W_1}{t_1} = \frac{x}{5} W$$

Crane B

$$W_2 = x \text{ Joule}$$

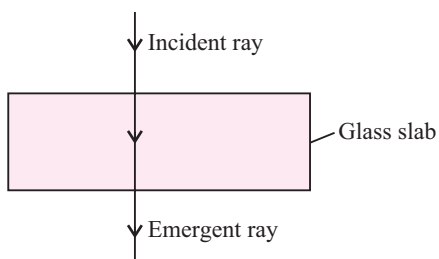
$$t_2 = 2 \text{ s}$$

$$P_B = \frac{W_2}{t_2} = \frac{x}{2} W$$

$$\therefore \frac{P_A}{P_B} = \frac{x/5}{x/2} = \frac{x}{5} \times \frac{2}{x} = \frac{2}{5}$$

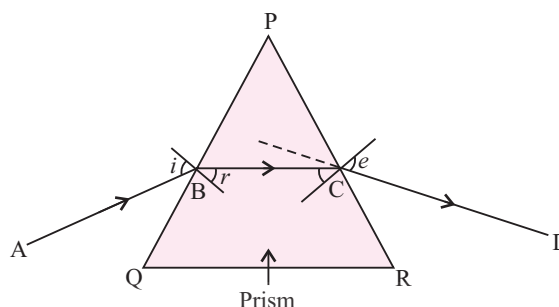
$$\therefore \text{Power of Crane A : Power of Crane B} = 2 : 5$$

(b)



- (c) AB → Incident Ray
BC → Refracted Ray

CD → Emergent Ray.



- (d) (i) Object must be placed between first focal point (F_1) and the centre of curvature ($2F_1$) of the lens.

(ii) Object must be placed between the first focal point (F_1) and the lens.

- (e) Given : Apparent depth = 2.7 m

$$\mu_w = \frac{4}{3}$$

$$\therefore \mu_w = \frac{\text{Actual depth}}{\text{Apparent depth}}$$

$$\frac{4}{3} = \frac{\text{Actual depth}}{2.7}$$

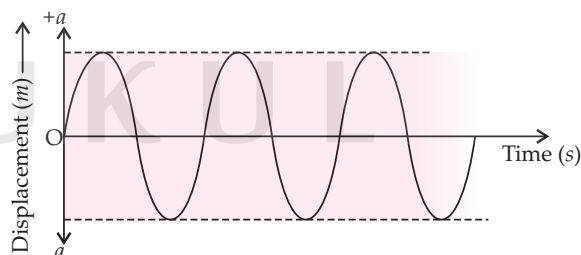
$$\Rightarrow \text{Actual depth} = \frac{4}{3} \times 2.7 \text{ m} = 3.6 \text{ m}$$

Answer 3.

- (a) (i) Both colours of light have same speed in vacuum.

(ii) In glass speed of red light is more than that of blue light.

(b)



- (c) Given : $\lambda = 0.4 \text{ m}$

$$V = 1400 \text{ ms}^{-1}$$

$$\therefore V = f\lambda \Rightarrow f = \frac{V}{\lambda} = \frac{1400}{0.4} \text{ Hz}$$

$$= 3500 \text{ Hz}$$

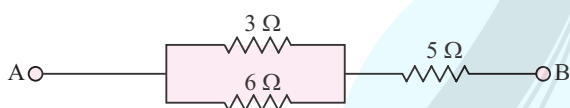
\therefore Frequency remains unchanged in air, the wave is audible in air because 3500 Hz falls in the audible range of frequency.

- (d) The specific heat capacity of stone is much less than the specific heat capacity of water, hence for the same heat supplied the temperature of stone rises much more than water for the same duration and gets heated up much more.
- (e) Copper wire should not be used as a fuse wire because it has high melting point and its specific resistance is much less than a normal fuse wire. (Normal fuse wire should have low melting point and high resistivity)

Answer 4.

- (a) Equivalent resistance of $3\ \Omega$ and $6\ \Omega$ in parallel is,

$$R_1 = \frac{3 \times 6}{6 + 3} = \frac{18}{9} = 2\ \Omega$$



Total resistance across AB is $R_1 + R_2 = (5 + 2) = 7\ \Omega$.

- (b) Let specific heat capacity of block P and block Q be C_P and C_Q respectively.

Metallic block P

$$m_1 = 2\text{ m}$$

$$c_1 = C_P$$

$$\Delta T = \Delta T$$

$$H_1 = m_1 c_1 \Delta T$$

$$= 2m C_P \Delta T$$

$$\therefore H_1 = H_2$$

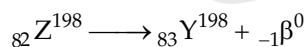
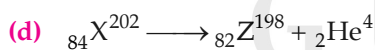
$$\Rightarrow 2m C_P \Delta T = m C_Q \Delta T$$

$$\therefore \frac{C_P}{C_Q} = \frac{m \times \Delta T}{2m \times \Delta T} = \frac{1}{2}$$

\therefore Ratio of specific heat capacities of block P and block Q is 1 : 2.

- (c) (i) 0°

- (ii) 90°



$$\therefore a = 83, \text{ and } b = 198$$

- (e) (i) South

- (ii) By increasing the strength of the current.

SECTION-II**Answer 5.**

- (a) (i) Given :

$$m = 200\text{ g} = 0.2\text{ kg}, g = 10\text{ ms}^{-2}, h = 5\text{ m}$$

$$\therefore \text{Potential energy (U)} = mgh$$

$$\text{at position B} = 0.2 \times 10 \times 5 = 10\text{ J}$$

- (ii) 10 J

$$(\because K + U = \text{constant})$$

- (iii) At position A, kinetic energy (K) = 10 J

$$\frac{1}{2}mv^2 = 10$$

$$\Rightarrow \frac{1}{2} \times 0.2 \times v^2 = 10$$

$$\Rightarrow v^2 = \frac{10 \times 2}{0.2} = 100$$

$$\therefore v = \sqrt{100} = 10\text{ ms}^{-1}$$

- (b) (i) Centripetal force acts in a direction towards the centre of circular path whereas centrifugal force acts in a direction away from the centre of circular path.

(ii) No, centrifugal force is not the force of reaction of centripetal force because action and reaction do not act on the same body.

(iii) Magnitudes of centripetal and centrifugal forces are in the ratio 1 : 1.

- (c) (i) Diagram of a block and tackle system having velocity ratio = 4

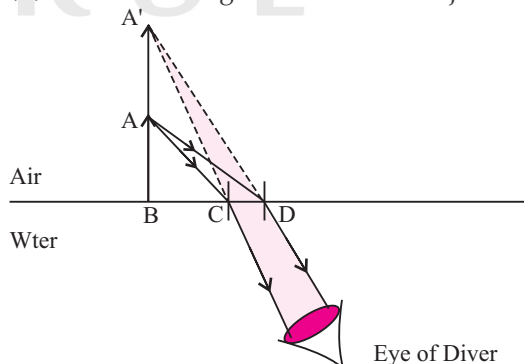


(ii) If weight of movable pulley is doubled there will be no change in the velocity ratio.

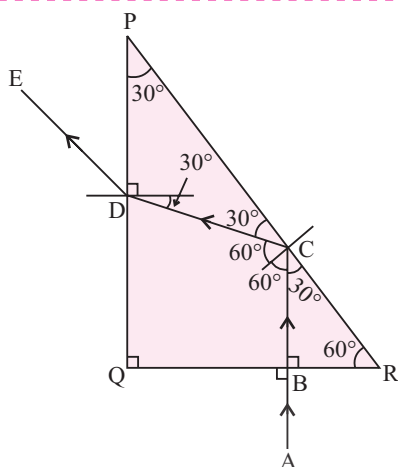
Answer 6.

- (a) (i) The object will appear taller.

- (ii) A'B' is the image formed of the object AB.



- (b) The path of the ray till it emerges out of the prism is ABCDE.



(c) (i) Convex lens

(ii) Given : $f = +20$ cm, $v = +60$ cm

$$\therefore \frac{1}{f} = \frac{1}{v} - \frac{1}{u}$$

$$\Rightarrow \frac{1}{20} = \frac{1}{60} - \frac{1}{u}$$

$$\Rightarrow \frac{1}{u} = \frac{1}{60} - \frac{1}{20}$$

$$= \frac{1-3}{60} = -\frac{2}{60} = -\frac{1}{30}$$

$$\therefore u = -30 \text{ cm}$$

The lens is at a distance 30 cm in front of the object.

(iii) $m = \frac{v}{u} = \frac{+60}{-30} = -2$ [- ve sign because image is real]

Answer 7.

(a) (i) During the day, clouds appear white because they contain dust particles and aggregates of water molecules of size bigger than the wavelength of visible light, hence they scatter all colours of incident white light from the sun to the same extent.

(ii) During the day, sky appears blue because blue (or violet) light due to its short wavelength is scattered more as compared to the red light of long wavelength. Hence, the sky other than the direction of sun appears blue.

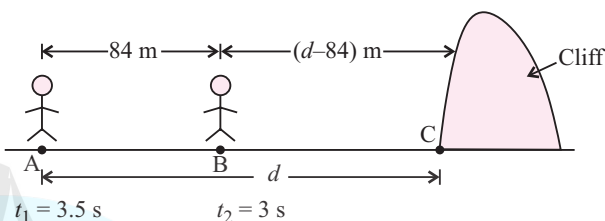
(b) (i) SONAR or Sound Navigation and Ranging.

(ii) The acoustically measurable quantities related to pitch is frequency or wavelength and for loudness, it is intensity of sound.

(c) (i) A tuning fork held close to ear, disturbs a small volume of air and hence, sound heard is faint, when the handle of the vibrating tuning fork

is held against table, it sets up forced vibrators in the tabletop. As tabletop has a large surface area, large volume of air is set into vibration transmitting more energy thereby producing loud sound.

(ii) Let the initial position of man from the cliff be d metre



At Position A

$$d_1 = d \text{ metre}$$

$$t_1 = 3.5 \text{ s}$$

$$\text{Speed of sound} = \frac{2d}{t}$$

$$\Rightarrow \frac{2d_1}{t_1} = \frac{2d_2}{t_2}$$

$$\Rightarrow \frac{2d}{3.5} = \frac{2(d-84)}{3}$$

$$\Rightarrow 6d = 7d - 588$$

$$\Rightarrow d = 588 \text{ m}$$

\therefore Distance of cliff from initial position of man = 588 m.

At Position B

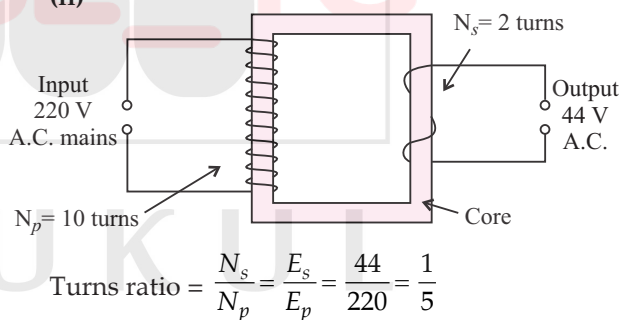
$$d_2 = (d - 84) \text{ m}$$

$$t_2 = 3 \text{ s}$$

Answer 8.

(a) (i) The material used for core is laminated soft iron.

(ii)



Hence, number of turns in secondary coil : primary coil is equal to 1 : 5

(b) (i) Superconductors are substances of zero resistance at temperature closer to absolute zero.

(ii) $P = 110 \text{ W}$

$$V = 220 \text{ volt}$$

$$\therefore \text{Current } I = \frac{P}{V} = \frac{110}{220} \text{ A}$$

$$= 0.5 \text{ A}$$

(iii) For semiconductors such as silicon, germanium, or carbon resistance decreases with the increase in temperature.

- (c) (i) Equivalent resistance of 3Ω and 1.5Ω in parallel,

$$R_1 = \frac{3 \times 1.5}{3 + 1.5} \Omega = 1\Omega$$

Potential difference, across R_1

$$\Rightarrow V_1 = IR_1 = 0.3 \times 1 = 0.3V$$

\therefore Current through 3Ω resistor,

$$I_1 = \frac{V_1}{3} = \frac{0.3}{3} = 0.1A$$

- (ii) Total external resistance $R = 1 + 4 = 5\Omega$

$$\therefore E = I(R + r)$$

$$\Rightarrow 1.8 = 0.3(5 + r)$$

$$\Rightarrow \frac{1.8}{0.3} = 5 + r \Rightarrow 6 = 5 + r$$

$$\therefore r = 6 - 5 = 1\Omega$$

Answer 9.

- (a) (i) Heat capacity of a body is the amount of heat energy required to raise its temperature by 1 Kelvin.

(ii) SI Unit of heat capacity is joule per Kelvin (JK^{-1}).

(iii) Heat capacity = Mass \times Specific heat capacity

- (b) (i) The slope of CD is less than slope of AB because specific heat capacity of liquid phase of same material can be different from that of solid phase of same material.

(ii) Boiling point is $t_2^\circ\text{C}$ and melting point is $t_1^\circ\text{C}$.

- (c) Let final temperature of water = $x^\circ\text{C}$

| Ice | Water |
|--|---------------------------------------|
| $m_1 = 60 \text{ g}$ | $m_2 = 140 \text{ g}$ |
| $T_1 = 0^\circ\text{C}$ | $T_1 = 50^\circ\text{C}$ |
| $T_2 = x^\circ\text{C}$ | $T_2 = x^\circ\text{C}$ |
| Rise in temp. | fall in temp. |
| $(\Delta T) = (x - 0)^\circ\text{C} = x^\circ\text{C}$ | $(\Delta T) = (50 - x)^\circ\text{C}$ |

$$\text{Heat gained by ice} = M_1L + m_1c\Delta T = (60 \times 336 + 60 \times 4.2 \times x) \text{ J}$$

$$\text{Heat lost by water} = m_2c\Delta T = 140 \times 4.2 \times (50 - x) \text{ J}$$

Applying, the principle of mixtures,

$$140 \times 4.2 \times (50 - x) = 60 \times 336 + 60 \times 4.2 \times x$$

$$\Rightarrow 4.2(7000 - 140x - 60x) = 60 \times 336$$

$$\Rightarrow 7000 - 200x = \frac{60 \times 336}{4.2}$$

$$= \frac{60 \times 336}{42} \times 10$$

$$= 4800$$

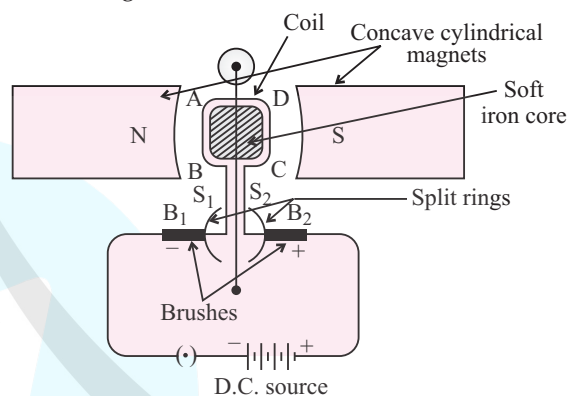
$$\Rightarrow 200x = 2200$$

$$\Rightarrow x = 11^\circ\text{C}$$

$$\therefore \text{Final temperature of water} = 11^\circ\text{C}$$

Answer 10.

- (a) (i) Diagram of a d.c. motor.



(ii) D.C. motor is used to produce rotational motion by using electricity in devices such as spinning and weaving machines, Fan etc.

- (b) (i)

| Nuclear Fission | Nuclear Fusion |
|--|---|
| 1. In nuclear fission when neutrons are bombarded on a heavy nucleus, it splits in two nearly equal light fragments. | In nuclear fusion, two light nuclei combine to form a heavy nucleus at a very high temperature and high pressure. |
| 2. It can be controlled. | It cannot be controlled. |

(ii) For disposal of nuclear waste, they must be first kept in thick casks and then buried in specially constructed deep underground stores and also while handling nuclear waste, we should wear special lined lead aprons and lead gloves.

- (c) For nucleus A

Atomic no. (Z) = 84

Mass no. (A) = $84 + 128 = 212$

(i) ${}_{84}^{212}\text{A} \xrightarrow{\alpha} {}_{82}^{208}\text{B}$ Nucleus B will have 82 protons and $(208 - 82) = 126$ neutrons.

(ii) ${}_{82}^{208}\text{B} \xrightarrow{\beta} {}_{83}^{208}\text{C}$ Nucleus C will have 83 protons and $(208 - 83) = 125$ neutrons

(iii) Mass number of nucleus, $A = 212$

(iv) No, the composition of nucleus C does not change due to emission of gamma radiations.

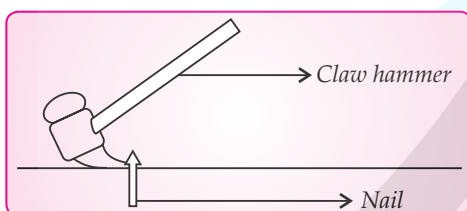
QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

- (a) The diagram below shows a claw hammer used to remove a nail : [2]



- (i) To which class of lever does it belong ?
 (ii) Give one more example of the **same class** of lever mentioned by you in (i) for which the **mechanical advantage is greater than one**.
 (b) Two bodies A and B have masses in the ratio 5 : 1 and their kinetic energies are in the ratio 125 : 9. Find the ratio of their velocities. [2]
 (c) (i) Name the physical quantity which is measured in calories.
 (ii) How is calorie related to the S.I. unit of that quantity ? [2]
 (d) (i) Define couple.
 (ii) State the S.I. unit of moment of couple. [2]
 (e) (i) Define critical angle.
 (ii) State one important factor which affects the critical angle of a given medium. [2]

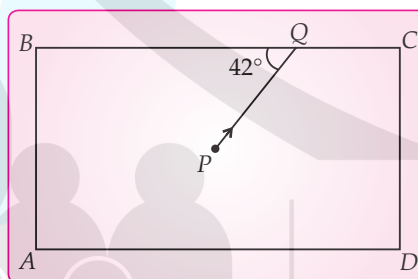
Question 2.

- (a) An electromagnetic radiation is used for photography in fog. [2]
 (i) Identify the radiation.
 (ii) Why is this radiation mentioned by you, ideal for this purpose ?
 (b) (i) What is the relation between the refractive index of water with respect to air (${}_a\mu_w$) and the refractive index of air with respect to water (${}_w\mu_a$).
 (ii) If the refractive index of water with respect to air (${}_a\mu_w$) is $\frac{5}{3}$. Calculate the refractive index of air with respect to water (${}_w\mu_a$). [2]

- (c) The specific heat capacity of a substance A is $3,800 \text{ J kg}^{-1} \text{ K}^{-1}$ and that of a substance B is $400 \text{ J kg}^{-1} \text{ K}^{-1}$. Which of the two substances is a good conductor of heat ? Give a reason for your answer. [2]

- (d) A man playing a flute is able to produce notes of different frequencies. If he closes the holes near his mouth, will the pitch of the note produced, increase or decrease ? Give a reason. [2]

- (e) The diagram below shows a light source P embedded in a rectangular glass block ABCD of critical angle 42° . Complete the path of the ray PQ till it emerges out of block. [Write necessary angles.] [2]

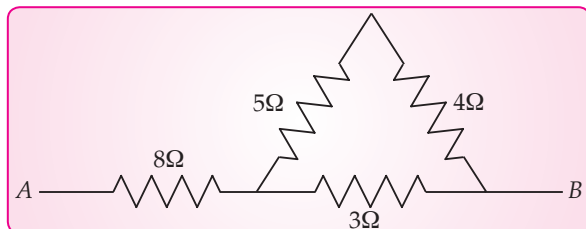


Question 3.

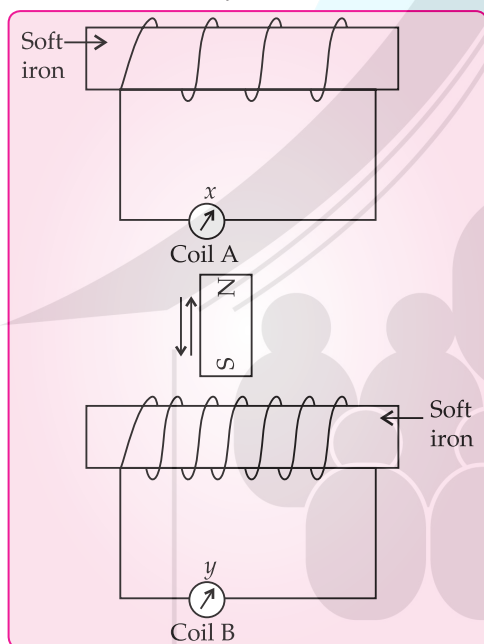
- (a) (i) If the lens is placed in water instead of air, how does its focal length change ?
 (ii) Which lens, thick or thin has greater focal length ? [2]
 (b) Two waves of the same pitch have amplitudes in the ratio 1 : 3. What will be the ratio of their : [2]
 (i) intensities and
 (ii) frequencies ?
 (c) How does an increase in the temperature affect the specific resistance of a : [2]
 (i) Metal and
 (ii) Semiconductor ?
 (d) (i) Define resonant vibrations.
 (ii) Which characteristic of sound, makes it possible to recognize a person by his voice without seeing him ? [2]
 (e) Is it possible for a hydrogen (${}_1^1\text{H}$) nucleus to emit an alpha particle ? Give a reason for your answer. [2]

Question 4.

- (a) Calculate the effective resistance across AB : [2]



- (b) (i) State whether the specific heat capacity of a substance remains the same when its state changes from solid to liquid. [2]
 (ii) Give one example to support your answer. [2]
 (c) A magnet kept at the centre of two coils A and B is moved to and fro as shown in the diagram. The two galvanometers show deflection. [2]



State with a reason whether :

$$x > y$$

or

$$x < y.$$

[x and y are magnitudes of deflection]

- (d) (i) Why is a nuclear fusion reaction called a thermo nuclear reaction ? [2]
 (ii) Complete the reaction :
 ${}^3\text{He}_2 + {}^2\text{H}_1 \longrightarrow {}^4\text{He}_2 + \dots + \text{Energy}$
 (e) State two ways to increase the speed of rotation of a D.C. motor. [2]

SECTION-II (40 Marks)

Attempt any four questions from this Section

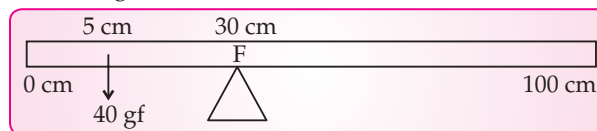
Question 5.

- (a) A body of mass 10 kg is kept at a height of 5 m. It is allowed to fall and reach the ground. [3]

(i) What is the total mechanical energy possessed by the body at the height of 2 m assuming it is a frictionless medium ?

(ii) What is the kinetic energy possessed by the body just before hitting the ground ? (Take $g = 10 \text{ m/s}^2$.)

- (b) A uniform meter scale is in equilibrium as shown in the diagram : [3]



(i) Calculate the weight of the meter scale.

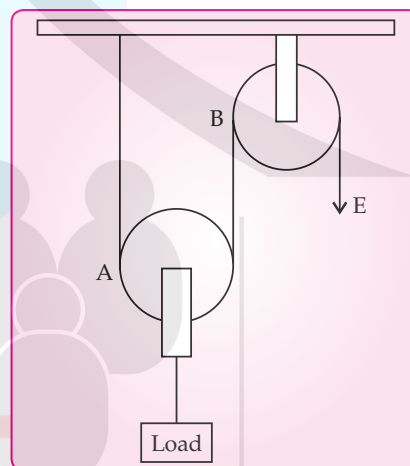
(ii) Which of the following options is correct to keep the ruler in equilibrium when 40 gf wt is shifted to 0 cm mark ?

F is shifted towards 0 cm.

Or

F is shifted towards 100 cm.

- (c) The diagram below shows a pulley arrangement : [4]



(i) Copy the diagram and mark the direction of tension on each strand of the string.

(ii) What is the velocity ratio of the arrangement ?

(iii) If the tension acting on the string is T, then what is the relationship between T and effort E ?

(iv) If the free end of the string moves through a distance x, find the distance by which the load is raised.

Question 6.

- (a) How does the angle of deviation formed by a prism change with the increase in the angle of incidence ?

Draw a graph showing the variation in the angle of deviation with the angle of incidence at a prism surface. [3]

- (b) A virtual, diminished image is formed when an object is placed between the optical centre and the principal focus of a lens. [3]

(i) Name the type of lens which forms the above image.

(ii) Draw a ray diagram to show the formation of the image with the above stated characteristics.

(c) An object is placed at a distance 24 cm in front of a convex lens of focal length 8 cm. [4]

(i) What is the nature of the image so formed ?

(ii) Calculate the distance of the image from the lens.

(iii) Calculate the magnification of the image.

Question 7.

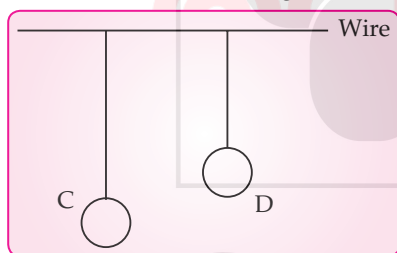
(a) It is observed that during march-past we hear a base drum distinctly from a distance compared to the side drums. [3]

(i) Name the characteristic of sound associated with the above observation.

(ii) Give a reason for the above observation.

(b) A pendulum has a frequency of 4 vibrations per second. An observer starts the pendulum and fires a gun simultaneously. He hears the echo from the cliff after 6 vibrations of the pendulum. If the velocity of sound in air is 340 m/s, find the distance between the cliff and the observer. [3]

(c) Two pendulums C and D suspended from a wire as shown in the figure given below. Pendulum C is made to oscillate by displacing it from its mean position. It is seen that D also starts oscillating. [4]



(i) Name the type of oscillation, C will execute.

(ii) Name the type of oscillation, D will execute.

(iii) If the length of D is made equal to C then what difference will you notice in the oscillations of D ?

(iv) What is the name of the phenomenon when the length of D is made equal to C ?

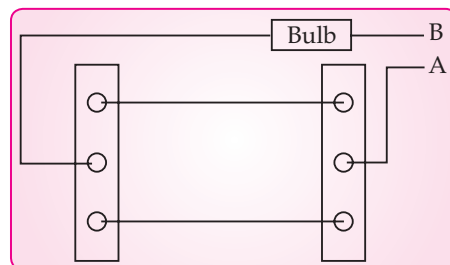
Question 8.

(a) (i) Write one advantage of connecting electrical appliances in parallel combination.

(ii) What characteristics should a fuse wire have ?

(iii) Which wire in a power circuit is connected to the metallic body of the appliance ? [3]

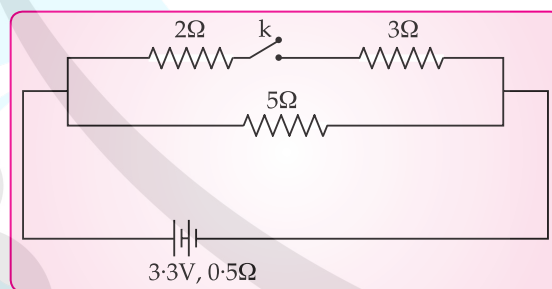
(b) The diagram below shows a dual control switch circuit connected to a bulb. [3]



(i) Copy the diagram and complete it so that the bulb is switched ON.

(ii) Out of A and B which one is the live wire and which one is the neutral wire ?

(c)



The diagram above shows a circuit with the key k open. Calculate : [4]

(i) the resistance of the circuit when the key k is open.

(ii) the current drawn from the cell when the key k is open.

(iii) the resistance of the circuit when the key k is closed.

(iv) the current drawn from the cell when the key k is closed.

Question 9.

(a) (i) Define Calorimetry.

(ii) Name the material used for making a Calorimeter.

(iii) Why is a Calorimeter made up of thin sheets of the above material answered in (ii) ? [3]

(b) The melting point of naphthalene is 80°C and the room temperature is 30°C . A sample of liquid naphthalene at 100°C is cooled down to the room temperature. Draw a temperature time graph to represent this cooling. In the graph, mark the region which corresponds to the freezing process. [3]

(c) 104 g of water at 30°C is taken in a calorimeter made of copper of mass 42 g. When a certain mass of ice at 0°C is added to it, the final steady temperature of the mixture after the ice has melted, was found to be 10°C . Find the mass of ice added. [Specific heat capacity of

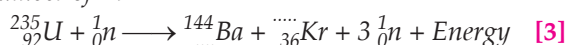
water = $4.2 \text{ Jg}^{-1} \text{ } ^\circ\text{C}^{-1}$; Specific latent heat of fusion of ice = 336 Jg^{-1} ; Specific heat capacity of copper = $0.4 \text{ Jg}^{-1} \text{ } ^\circ\text{C}^{-1}$ [4]

Question 10.

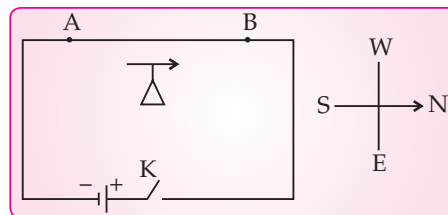
(a) Draw a neat labelled diagram of an A.C. generator. [3]

(b) (i) Define nuclear fission.

(ii) Rewrite and complete the following nuclear reaction by filling in the atomic number of Ba and mass number of Kr :



(c) The diagram below shows a magnetic needle kept just below the conductor AB which is kept in North-South direction. [4]



(i) In which direction will the needle deflect when the key is closed ?

(ii) Why is the deflection produced ?

(iii) What will be the change in the deflection if the magnetic needle is taken just above the conductor AB ?

(iv) Name one device which works on this principle.

ANSWERS**SECTION-I****Answer 1.**

(a) (i) Class first lever.

(ii) Pliers.

(b) Let mass, kinetic energy and velocity of bodies A and B be (m_A, m_B) , (k_A, k_B) and (v_A, v_B) respectively.

Given : $\frac{m_A}{m_B} = \frac{5}{1}$

and $\frac{k_A}{k_B} = \frac{125}{9} \quad \left[\because k = \frac{1}{2}mv^2 \right]$

$$\Rightarrow \frac{\frac{1}{2}m_A(v_A)^2}{\frac{1}{2}m_B(v_B)^2} = \frac{125}{9}$$

$$\Rightarrow \frac{m_A}{m_B} \times \left(\frac{v_A}{v_B} \right)^2 = \frac{125}{9}$$

$$\Rightarrow \frac{5}{1} \times \left(\frac{v_A}{v_B} \right)^2 = \frac{125}{9}$$

$$\Rightarrow \left(\frac{v_A}{v_B} \right)^2 = \frac{125}{9} \times \frac{1}{5} = \frac{25}{9}$$

$$\Rightarrow \frac{v_A}{v_B} = \sqrt{\frac{25}{9}} = \frac{5}{3}$$

$$\therefore v_A : v_B = 5 : 3$$

(c) (i) Heat energy is measured in calories.

(ii) 1 calorie = 4.186 Joule.

(d) (i) Two equal and opposite parallel forces, not acting along the same line forms a couple. A couple is always needed to produce rotation.

(ii) S.I. unit of moment of couple is Newton \times metre (Nm).

(e) (i) The angle of incidence in the denser medium corresponding to which the angle of refraction in the rarer medium is 90° is called critical angle.

$$\text{Critical angle } (i_c) = \sin^{-1} \left(\frac{1}{\mu} \right)$$

(ii) Critical angle for a given pair of media depends on their refractive indices.

Answer 2.

(a) (i) Infrared radiation.

(ii) They have low frequency, the energy associated with them is also low so they do not scatter much and can penetrate appreciably through it.

(b) (i)

$${}_a\mu_w = \frac{\mu_w}{\mu_a}$$

$${}_w\mu_a = \frac{\mu_a}{\mu_w}$$

$$\therefore {}_a\mu_w = \frac{1}{{}_w\mu_a}$$

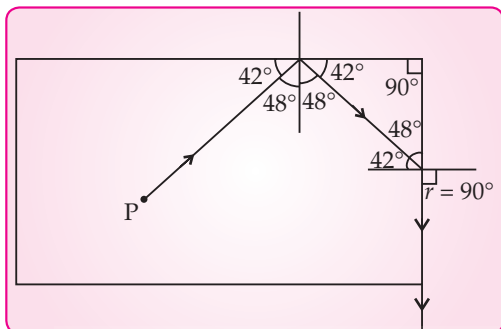
(ii) Given, ${}_a\mu_w = \frac{5}{3}$

$$\therefore {}_w\mu_a = \frac{1}{{}_a\mu_w} = \frac{3}{5}$$

(c) Substance B with specific heat capacity $400 \text{ J kg}^{-1} \text{ K}^{-1}$ is a good conductor of heat because for the same heat energy and same mass, the rise in temperature of B will be more.

(d) If the man closes the holes in a flute near his mouth a sound of lower frequency note will be produced because the length of vibrating air column increases and the frequency of vibrating air column is inversely proportional to the length of vibrating air column.

- (e) The complete ray diagram with necessary angles is as follows :



Answer 3.

- (a) (i) The focal length of the lens will increase when lens is immersed in water.
(ii) Thin lens will have greater focal length.

- (b) (i)

$$\frac{A_1}{A_2} = \frac{1}{3}$$

\therefore Intensity, $I \propto A^2$

$$\therefore \frac{I_1}{I_2} = \frac{1}{9}$$

(ii) Pitch is same \Rightarrow frequency is same.

- (c) (i) Specific resistance of a metal increases with the increase in temperature.

(ii) Specific resistance of a semiconductor decreases with the increase in temperature.

- (d) (i) When the frequency of the externally applied periodic force on a body is equal to its natural frequency, the body readily begins, to vibrate with an increased amplitude. Such large amplitude vibrations are called resonant vibrations.

(ii) Quality of sound or Timbre.

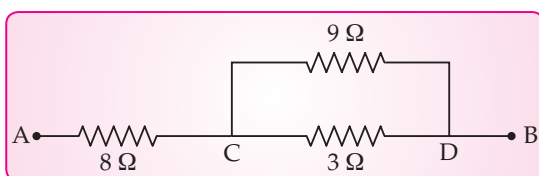
- (e) No, it is not possible because an alpha particle (${}^4_2\text{He}$) consists of two protons and two neutrons.

Answer 4.

- (a) Given : $5\ \Omega$ and $4\ \Omega$ in series

$$\therefore R_1 = (5 + 4)\ \Omega = 9\ \Omega$$

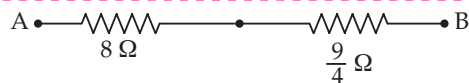
Diagram can be simplified as follows :



Now, $9\ \Omega$ and $3\ \Omega$ are in parallel.

$$\therefore R_2 = \frac{9 \times 3}{9 + 3} = \frac{27}{12} = \frac{9}{4}\ \Omega$$

Now, $8\ \Omega$ and R_2 are in series



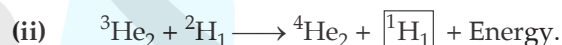
$$\therefore R_3 = 8 + \frac{9}{4} = \frac{41}{4}\ \Omega = 10.25\ \Omega$$

- (b) (i) No, specific heat capacity of a substance is different in its different phases (states).

(ii) Specific heat capacity of water is $4200\ \text{Jkg}^{-1}\ \text{K}^{-1}$ and that of ice is $2100\ \text{Jkg}^{-1}\ \text{K}^{-1}$.

- (c) $x < y$ because coil B has more number of turns hence there will be a greater change in magnetic flux linked with the coil B.

- (d) (i) Nuclear fusion takes place at extremely high temperature and pressure and the two nuclei due to their thermal agitations acquire sufficient kinetic energy so as to overcome the force of repulsion between them when they approach each other, so they get fused. Hence, it is called a thermo nuclear reactions.



- (e) (i) By increasing the strength of current in the coil.

(ii) By increasing the number of turns in the coil

SECTION-II

Answer 5.

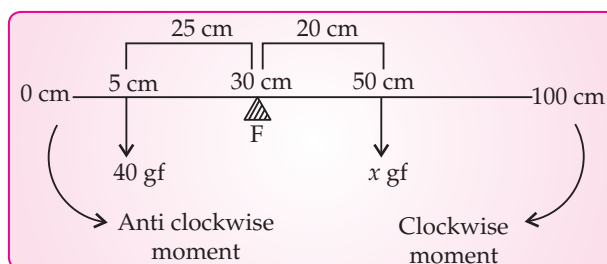
- (a) Given : Mass (m) = $10\ \text{kg}$, height (h) = $5\ \text{m}$, $g = 10\ \text{ms}^{-2}$, Potential energy (U) = mgh
 $= 10 \times 10 \times 5\ \text{J} = 500\ \text{J}$

(i) According to the law of conservation of energy, the sum of kinetic energy (k) and potential energy (U) remains constant when there are no frictional forces.

$$\therefore \text{Total mechanical energy at height of } 2\ \text{m} \\ = \text{Initial potential energy} \\ = 500\ \text{J}$$

(ii) Similarly, according to the law of conservation of energy, the kinetic energy possessed by the body just before touching the ground = $500\ \text{J}$.

- (b) (i) Let the weight of the meter scale be $x\ \text{gf}$ and it acts at the centre of gravity (i.e., $50\ \text{cm}$ mark)



Anticlockwise moment = 40×25 gf cm

Clockwise moment = $x \times 20$ gf cm

when the meter scale is balanced,

Clockwise moment = Anticlockwise moment

$$\Rightarrow x \times 20 = 40 \times 25$$

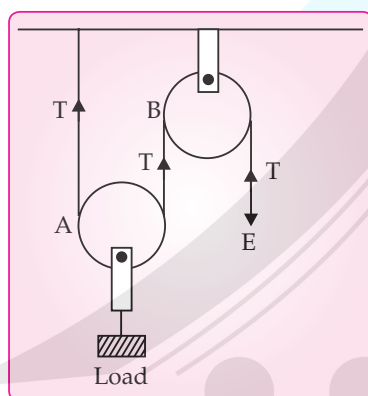
$$\Rightarrow x = \frac{40 \times 25}{20} \text{ gf}$$

$$= 50 \text{ gf}$$

\therefore Weight of meter scale is 50 gf.

(ii) F is shifted towards 0 cm.

- (c) (i) The diagram with direction of tension on each strand is shown below.



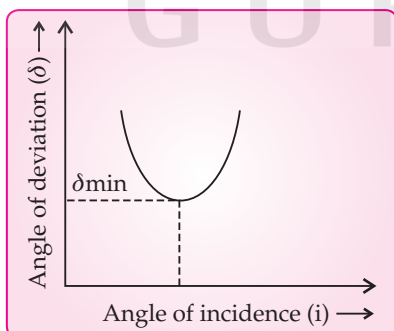
(ii) Velocity ratio = 2

(iii) $E = T$

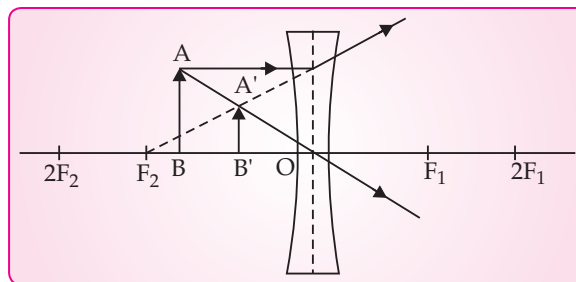
(iv) Load is raised by a distance $\frac{x}{2}$.

Answer 6.

- (a) Experimentally it has been observed that as the angle of incidence increases, the angle of deviation first decreases, reaches to a minimum value for a certain angle of incidence and then an further increasing the angle of incidence, the angle of deviation begins to increase.

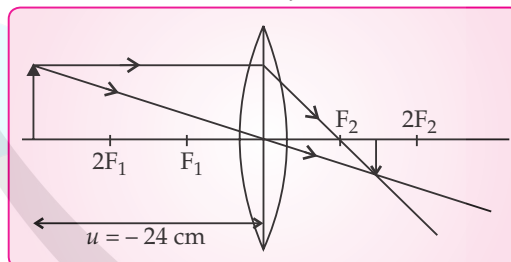


- (b) (i) A concave lens forms the given image.
(ii) Ray diagram to show the formation of image (A'B') is given below.



- (c) (i) A real, inverted and diminished image is formed.

(ii) Given : $u = -24$ cm, $f = +8$ cm



From the relation,

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

\Rightarrow

$$\frac{1}{v} = \frac{1}{u} + \frac{1}{f}$$

$$= \frac{1}{-24} + \frac{1}{8}$$

$$= \frac{-1+3}{24} = \frac{1}{12}$$

or

$$v = 12 \text{ cm}$$

Thus, the image is at a distance 12 cm behind the lens.

$$(iii) \text{ Magnification } (m) = \frac{v}{u} = \frac{12}{-24} = -\frac{1}{2}$$

Negative sign signifies inverted image.

Answer 7.

- (a) (i) Loudness

(ii) The sound produced from the base drum is louder than the sound produced by the side drums, hence it can be heard distinctly from a distance as compared to the side drums.

- (b) Time taken to complete 4 vibrations = 1 second

$$\text{Time taken to complete 1 vibration} = \frac{1}{4} \text{ second}$$

\therefore Time taken to complete 6 vibrations

$$= \frac{1}{4} \times 6 \text{ second}$$

$$= 1.5 \text{ second}$$

$$\text{Time } (t) = 1.5 \text{ s}$$

$$\text{Velocity } (v) = 340 \text{ m/s}$$

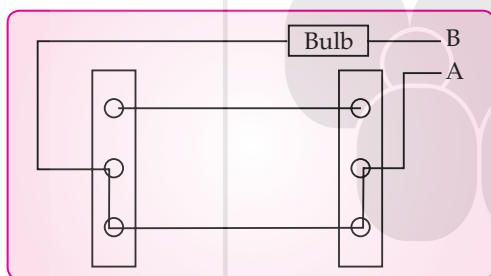
\therefore Distance between the cliff and observer

$$\begin{aligned} d &= \frac{v \times t}{2} \\ &= \frac{340 \times 1.5}{2} \text{ m} \\ &= 255 \text{ m} \end{aligned}$$

- (c) (i) C will execute free or natural oscillations.
 (ii) D will execute forced oscillations.
 (iii) The amplitude of oscillations of D will increase and it will oscillate in same phase as that of C.
 (iv) Resonance.

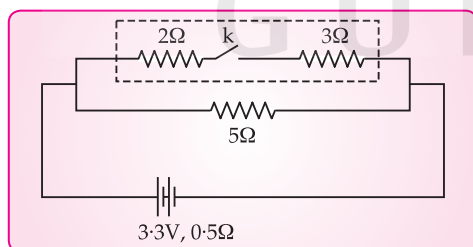
Answer 8.

- (a) (i) Each appliance gets connected to 220 V supply for its normal working.
 (ii) A fuse wire must have low melting point and its specific resistance must be more than that of copper or aluminium.
 (iii) Earth wire.
 (b) (i) The diagram below shows the bulb in switched ON mode.



- (ii) A is live wire, B is neutral wire.

- (c) (i) When the key k is open :

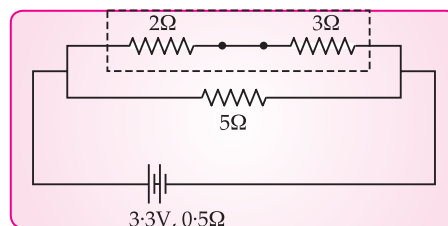


Resistance (R_1) of the circuit $= (5 + 0.5) \Omega = 5.5 \Omega$

- (ii) Current (I_1) drawn when key k is open :

$$\begin{aligned} I_1 &= \frac{V}{R_1} = \frac{3.3}{5.5} \text{ A} \\ &= \frac{3}{5} \text{ A} = 0.6 \text{ A} \end{aligned}$$

- (iii) When the key k is closed :



2Ω and 3Ω are in series and their equivalent resistance $= (2 + 3) \Omega = 5 \Omega$

5Ω and 5Ω are in parallel

$$\begin{aligned} \frac{1}{R_p} &= \frac{1}{5} + \frac{1}{5} = \frac{1+1}{5} = \frac{2}{5} \\ R_p &= \frac{5}{2} \Omega = 2.5 \Omega \end{aligned}$$

Resistance of circuit (R_2) when key k is closed

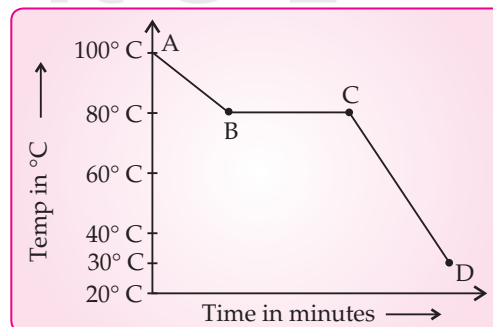
$$\begin{aligned} &= (R_p + 0.5) \Omega \\ &= (2.5 + 0.5) \Omega \\ &= 3.0 \Omega \end{aligned}$$

- (iv) Current (I_2) drawn when key k is closed

$$\begin{aligned} &= \frac{V}{R_2} \\ &= \frac{3.3}{3} \text{ A} = 1.1 \text{ A} \end{aligned}$$

Answer 9.

- (a) (i) The measurement of the quantity of heat is called calorimetry.
 (ii) Copper.
 (iii) Calorimeter is made up of thin sheet of copper because copper is a good conductor of heat and so the calorimeter will soon acquire the temperature of its contents and also copper has low specific heat capacity so the heat capacity of the calorimeter remains low and it takes very less amount of heat energy from the contents to acquire its temperature.
 (b) BC represents the freezing process in the graph.



- (c) Given : $m_w = 104 \text{ g} = T_w = 30^\circ\text{C}$
 $m_c = 42 \text{ g}, T = 10^\circ\text{C}$

$$m_i = ?$$

By calorimetry,

Heat lost = Heat gained

$$m_w S_w (T_w - T) + m_c S_c (T_w - T) = m_i \alpha + m_i S_w (T - T_i)$$

$$\Rightarrow (104) (4.2) (30 - 10) + (42) (0.4) (30 - 10)$$

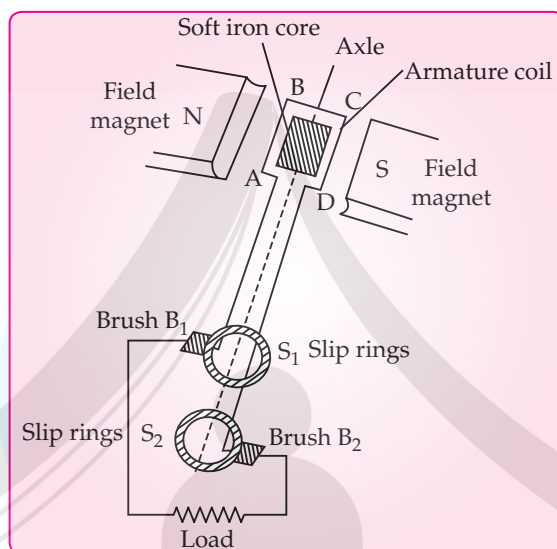
$$= m_i (336) + m_i (4.2) (10 - 0)$$

$$\Rightarrow m_i = \frac{(104) (4.2) (20) + (42) (0.4) (20)}{(336 + 42)}$$

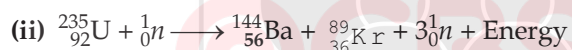
$$m_i = 24 \text{ g}$$

Answer 10.

(a) The diagram of A.C. generator is shown below.



(b) (i) Nuclear fission is the process in which a heavy nucleus is splitted into two light nuclei of nearly the same size, by bombarding it with slow neutrons.



(c) (i) Needle deflects towards the east.

(ii) On passing current in the wire AB, a magnetic field is produced around it and the magnetic needle experiences a torque in this magnetic field, so it deflects to align itself in the direction of magnetic field at that point.

(iii) Needle will deflect towards the west.

(iv) Electric motor.

••

GURUKUL

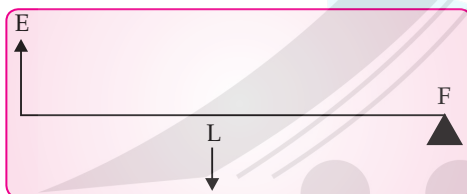
QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

- (a) (i) State and define the S.I. unit of power. [2]
 (ii) How is the unit horse power related to the S.I. unit of power ?
- (b) State the energy changes in the following cases while in use : [2]
 (i) An electric iron
 (ii) A ceiling fan
- (c) The diagram below shows a lever in use : [2]



- (i) To which class of levers does it belong ?
 (ii) Without changing the dimensions of the lever, if the load is shifted towards the fulcrum what happens to the mechanical advantage of the lever ?
- (d) (i) Why is the ratio of the velocities of light of wavelengths 4000 \AA and 8000 \AA in vacuum $1 : 1$? [2]
 (ii) Which of the above wavelengths has a higher frequency ?
- (e) (i) Why is the motion of a body moving with a constant speed around a circular path said to be accelerated ? [2]
 (ii) Name the unit of physical quantity obtained by the formula $\frac{2K}{v^2}$.

where K : kinetic energy, v : linear velocity.

Question 2.

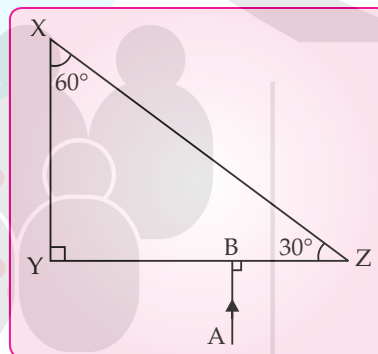
- (a) The power of a lens is -5 D . [2]
 (i) Find its focal length.
 (ii) Name the type of lens.
- (b) State the position of the object in front of a converging lens if : [2]
 (i) It produces a real and same size image of the object.
 (ii) It is used as a magnifying lens.

- (c) (i) State the relation between the critical angle and the absolute refractive index of a medium. [2]
 (ii) Which colour of light has a higher critical angle ? Red light or Green light.

- (d) (i) Define scattering. [2]
 (ii) The smoke from a fire looks white.
 Which of the following statements is true ?

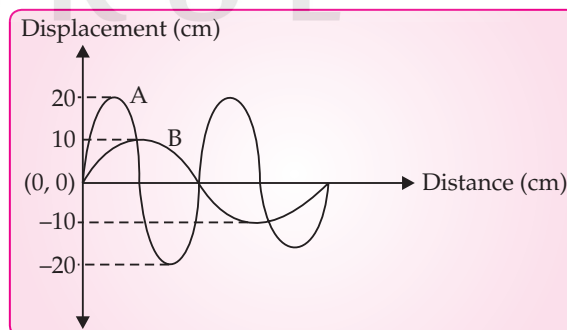
- (1) Molecules of the smoke are bigger than the wavelength of light.
 (2) Molecules of the smoke are smaller than the wavelength of light.

- (e) The following diagram shows a 60° , 30° , 90° glass prism of critical angle 42° . Copy the diagram and complete the path of incident ray AB emerging out of the prism marking the angle of incidence on each surface. [2]



Question 3.

- (a) Displacement distance graph of two sound waves A and B, travelling in a medium, are as shown in the diagram below :



Study the two sound waves and compare their :

- (i) Amplitudes
 (ii) Wavelengths [2]

- (b) You have three resistors of values $2\ \Omega$, $3\ \Omega$ and $5\ \Omega$. How will you join them so that the total resistance is more than $7\ \Omega$? [2]

- (i) Draw a diagram for the arrangement.
(ii) Calculate the equivalent resistance.

- (c) (i) What do you understand by the term nuclear fusion? [2]

(ii) Nuclear power plants use nuclear fission reaction to produce electricity. What is the advantage of producing electricity by fusion reaction?

- (d) (i) What do you understand by free vibrations of a body? [2]

(ii) Why does the amplitude of a vibrating body continuously decrease during damped vibrations?

- (e) (i) How is the e.m.f. across primary and secondary coils of a transformer related with the number of turns of coil in them? [2]

(ii) On which type of current do transformers work?

Question 4.

- (a) (i) How can a temperature in degree Celsius be converted into S.I. unit of temperature?

(ii) A liquid X has the maximum specific heat capacity and is used as a coolant in car radiators. Name the liquid X. [2]

- (b) A solid metal weighing 150 g melts at its melting point of 800°C by providing heat at the rate of 100 W. The time taken for it to completely melt at the same temperature is 4 min. What is the specific latent heat of fusion of the metal? [2]

- (c) Identify the following wires used in a household circuit: [2]

- (i) The wire is also called as the phase wire.
(ii) The wire is connected to the top terminal of a three pin socket.

- (d) (i) What are isobars?

(ii) Give one example of isobars. [2]

- (e) State any two advantages of electromagnets over permanent magnets. [2]

SECTION-II (40 Marks)

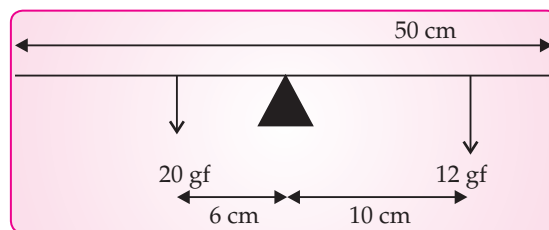
Attempt any four questions from this Section

Question 5.

- (a) (i) Derive a relationship between S.I. and C.G.S. unit of work.

(ii) A force acts on a body and displaces it by a distance S in a direction at an angle θ with the direction of force. What should be the value of θ to get the maximum positive work? [3]

- (b) A half metre rod is pivoted at the centre with two weights of 20 gf and 12 gf suspended at a perpendicular distance of 6 cm and 10 cm from the pivot respectively as shown below: [3]



- (i) Which of the two forces acting on the rigid rod causes clockwise moment?

(ii) Is the rod in equilibrium?

(iii) The direction of 20 kgf* force is reversed. What is the magnitude of the resultant moment of the forces on the rod?

* Mark is an error by the Council. We suggest you to use 'gf' instead of 'kgf'.

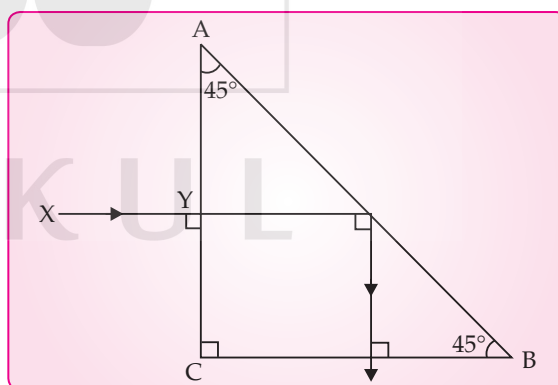
- (c) (i) Draw a diagram to show a block and tackle pulley system having a velocity ratio of 3 marking the direction of load (L), effort (E) and tension (T).

(ii) The pulley system drawn lifts a load of 150 N when an effort of 60 N is applied. Find its mechanical advantage.

(iii) Is the above pulley system an ideal machine or not? [4]

Question 6.

- (a) A ray of light XY passes through a right angled isosceles prism as shown below: [3]

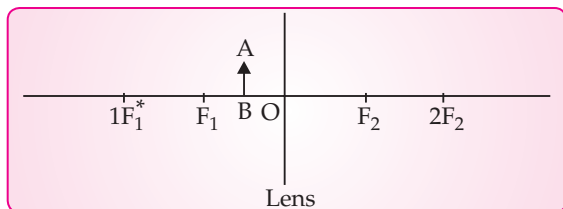


- (i) What is the angle through which the incident ray deviates and emerges out of the prism?

(ii) Name the instrument where this action of prism is put into use.

(iii) Which prism surface will behave as a mirror?

- (b) An object AB is placed between O and F_1 on the principal axis of a converging lens as shown in the diagram.



- * Mark is an error by the Council. We suggest you to use ' $2F_1$ ' instead of ' $1F_1$ '.

Copy the diagram and by using three standard rays starting from point A, obtain an image of the object AB. [3]

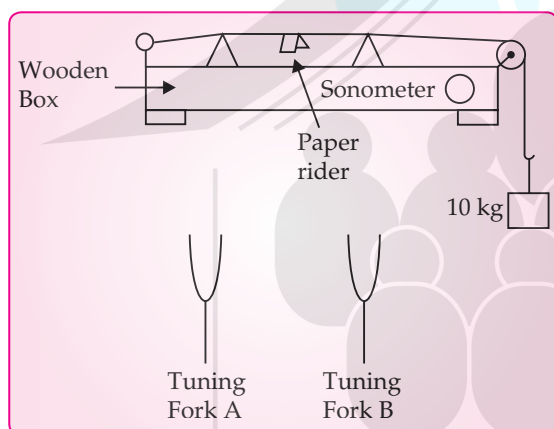
- (c) An object is placed at a distance of 12 cm from a convex lens of focal length 8 cm. Find : [4]

- the position of the image
- nature of the image

Question 7.

- (a) Draw the diagram of a right angled isosceles prism which is used to make an inverted image erect. [3]

- (b)

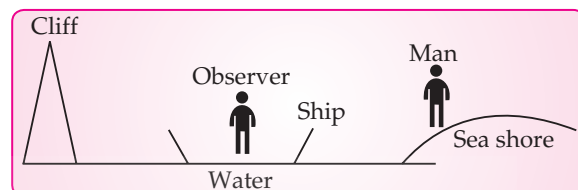


The diagram above shows a wire stretched over a sonometer. Stems of two vibrating tuning forks A and B are touched to the wooden box of the sonometer. It is observed that the paper rider (a small piece of paper folded at the centre) present on the wire flies off when the stem of vibrating tuning fork B is touched to the wooden box but the paper just vibrates when the stem of vibrating tuning fork A is touched to the wooden box.

- Name the phenomenon when the paper rider just vibrates.
 - Name the phenomenon when the paper rider flies off.
 - Why does the paper rider fly off when the stem of tuning fork B is touched to the box ? [3]
- (c) A person is standing at the sea shore. An observer on the ship which is anchored in between a vertical cliff and the person on the shore fires a gun. The person on

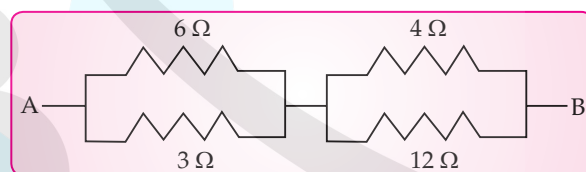
the shore hears two sounds, 2 seconds and 3 seconds after seeing the smoke of the fired gun. If the speed of sound in the air is 320 ms^{-1} , then calculate :

- The distance between the observer on the ship and the person on the shore.
- The distance between the cliff and the observer on the ship. [4]



Question 8.

- (i) A fuse is rated 8 A. Can it be used with an electrical appliance rated 5 kW, 200 V ? Give a reason.
(ii) Name two safety devices which are connected to the live wire of a household electric circuit. [3]
- (i) Find the equivalent resistance between A and B. [3]



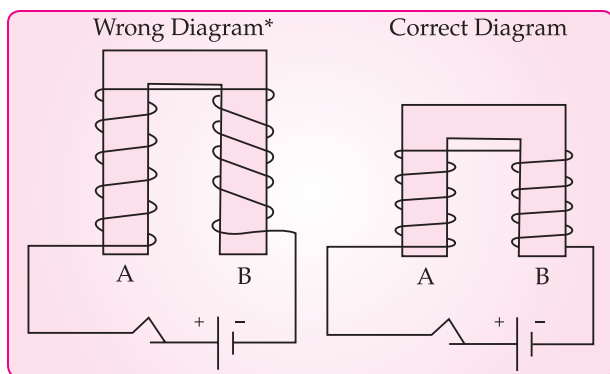
- State whether the resistivity of a wire changes with the change in the thickness of the wire. [3]
- An electric iron is rated 220 V, 2 kW. [4]
(i) If the iron is used for 2 h daily find the cost of running it for one week if it costs ₹ 4.25 per kWh.
(ii) Why is the fuse absolutely necessary in a power circuit ?

Question 9.

- (i) Heat supplied to a solid changes it into liquid. What is this change in phase called ?
(ii) During the phase change does the average kinetic energy of the molecules of the substance increase ?
(iii) What is the energy absorbed during the phase change called ? [3]
- (i) State two differences between 'Heat Capacity' and 'Specific Heat Capacity'.
(ii) Give a mathematical relation between Heat Capacity and Specific Heat Capacity. [3]
- The temperature of 170 g of water at 50°C is lowered to 5°C by adding certain amount of ice to it. Find the mass of ice added.
Given : Specific heat capacity of water = $4200 \text{ J kg}^{-1} \text{ }^\circ\text{C}^{-1}$ and Specific latent heat of ice = 336000 J kg^{-1} . [4]

Question 10.

- The diagram shows a coil wound around a U shape soft iron bar AB.



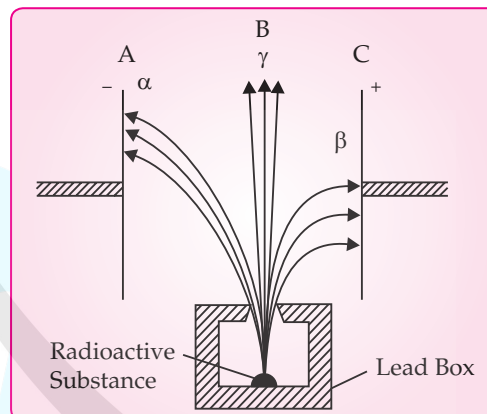
* Mark is an error by the Council. We suggest you to use 'Correct Diagram' instead of 'Wrong Diagram'.

- (i) What is the polarity induced at the ends A and B when the switch is pressed ?
- (ii) Suggest one way to strengthen the magnetic field in the electromagnet.
- (iii) What will be the polarities at A and B if the direction of current is reversed in the circuit ? [3]
- (b) The ore of uranium found in nature contains ${}_{92}\text{U}^{238}$ and ${}_{92}\text{U}^{235}$. Although both the isotopes are fissionable, it is found out experimentally that one of the two isotopes is more easily fissionable.
- (i) Name the isotope of uranium which is easily fissionable.

(ii) Give a reason for your answer.

(iii) Write a nuclear reaction when Uranium 238 emits an alpha particle to form a Thorium (Th) nucleus. [3]

- (c) Radiations given out from a source when subjected to an electric field in a direction perpendicular to their path are shown below in the diagram. The arrows show the path of the radiation A, B and C. Answer the following questions in terms of A, B and C. [4]



- (i) Name the radiation B which is unaffected by the electrostatic field.
- (ii) Why does the radiation C deflect more than A ?
- (iii) Which among the three causes the least biological damage externally ?
- (iv) Name the radiation which is used in carbon dating.

ANSWERS

SECTION-I

Answer 1.

- (a) (i) The S.I. unit of power is watt (W).
If 1 joule of work is done in 1 second, the power spent is said to be 1 watt.
- (ii) 1 H.P. = 746 W / 750 W
- (b) (i) Electrical energy changes to heat energy.
(ii) Electrical energy changes to mechanical energy.
- (c) (i) The load 'L' is in between effort 'E' and fulcrum 'F', so it is a class II lever.
(ii) If load is shifted towards the fulcrum, keeping the dimensions of the lever same, the load arm decreases.
Since, Mechanical advantage of a lever
- $$= \frac{\text{Effort arm}}{\text{Load arm}}$$
- Hence, the mechanical advantage increases.
- (d) (i) In vacuum, the velocity of light is always constant i.e., $3 \times 10^8 \text{ ms}^{-1}$ and it does not depend on wavelength or frequency.

(ii) We know that,
 $c = \lambda \nu$

$$\text{or } \nu = \frac{c}{\lambda}$$

$$\therefore \nu \propto \frac{1}{\lambda} \quad (\text{As } c \text{ is always constant})$$

Hence, lower wavelength i.e., 4000 \AA has higher frequency.

- (e) (i) The motion of a body moving with a constant speed around a circular path is accelerated due to continuous change in its direction at each point of circular path. Hence the velocity of the body changes continuously.

$$(ii) \quad \frac{2K}{v^2} = \frac{2 \times \frac{1}{2}mv^2}{v^2} = m$$

Hence, the physical quantity obtained is mass and its unit is kilogram (kg)/g/any unit of mass.

Answer 2.

- (a) (i) Given : $P = -5 \text{ D}$

$$\text{We know that, } f = \frac{1}{P}$$

$$\Rightarrow f = \frac{1}{-5} \text{ m}$$

$$= -0.2 \text{ m} = -20 \text{ cm}$$

(ii) The negative power indicates that the lens is a concave lens/diverging lens.

- (b) (i) The object is placed on the principal axis at a distance equal to twice the focal length of the lens (or At $2F_1$).

(ii) The object is placed between the first principal focal point (F_1) and the optical centre of lens.

(c) (i) $\mu = \frac{1}{\sin C} = \text{cosec } C$

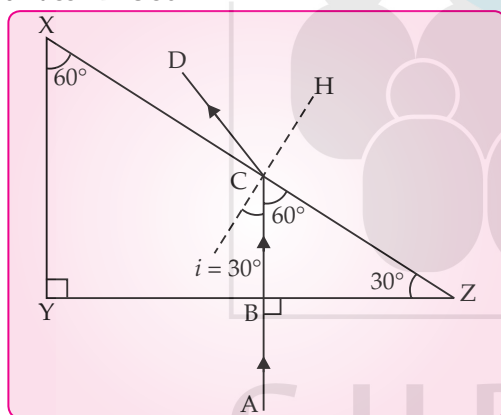
where ' μ ' is the absolute refractive index of medium and ' C ' is the critical angle.

(ii) Critical angle increases with the increase in wavelength of light, hence, red light having longer wavelength than green light has a higher critical angle.

- (d) (i) The process of absorption and then re-emission of light energy without changing its wavelength is called scattering of light.

(ii) Molecules of the smoke are bigger than the wavelength of light is the correct statement.

- (e) CD is the emergent ray as shown in the figure. Angle of incidence on the surface YZ is 0° and on surface XZ is 30° .



Answer 3.

- (a) **For wave A :** Amplitude (a_1) = 20 cm, Wavelength (λ_1) = λ cm (say)

For wave B : Amplitude (a_2) = 10 cm, Wavelength (λ_2) = 2λ cm

(i) $\frac{a_1}{a_2} = \frac{20}{10} = 2$

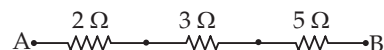
The amplitude of wave A is two times of the amplitude of wave B.

(ii) $\frac{\lambda_1}{\lambda_2} = \frac{\lambda}{2\lambda} = \frac{1}{2}$

The wavelength of wave A is half of the wavelength of wave B.

- (b) 2Ω , 3Ω and 5Ω have to be joined in series to obtain the total resistance more than 7Ω .

(i)



(ii) $R_{eq.} = (2 + 3 + 5) \Omega = 10 \Omega$

- (c) (i) Nuclear fusion is the process in which two light nuclei combine to form a heavy and more stable nucleus. In this process, huge amount of energy is released.

(ii) Nuclear fusion is not possible at ordinary temperature and ordinary pressure, but the advantage of fusion reaction over fission reaction is that the fusionable substance is not radioactive, so it does not give out any harmful radiations and the disposal of its waste is not difficult.

- (d) (i) The periodic vibrations of a body in the absence of any external periodic force on it, are called free (or natural) vibrations.

(ii) The amplitude of a vibrating body continuously decreases during damped vibrations because of the frictional (resistive) force due to the surrounding medium causes the energy loss.

- (e) (i) E.m.f. & the number of coil are directly proportional to each other.

$$\frac{E_s}{E_p} = \frac{N_s}{N_p}$$

where E_s and E_p are the e.m.f. across the secondary and the primary coils respectively.

N_s and N_p are the number of turns in the secondary and primary coils respectively.

- (ii) A transformer works on alternating current (A.C.).

Answer 4.

- (a) (i) The S.I. unit of temperature is Kelvin (K). To convert temperature in degree Celsius to Kelvin, 273.15 is added to degree Celsius.

$$T(K) = ^\circ C + 273.15$$

- (ii) The liquid 'X' is water because water has highest specific heat capacity.

- (b) Given : $m = 150 \text{ g}$, Power (P) = 100 W , Time (t) = $4 \text{ minute} = 4 \times 60 = 240 \text{ s}$

Heat energy supplied to melt the metal

$$= P \times t$$

$$= 100 \times 240 \text{ joule}$$

Heat energy required by the metal to melt

$$= mL$$

$$= 150 \times L \text{ joule}$$

If there is no exchange of heat energy with the surrounding, then

$$150 \times L = 100 \times 240$$

$$\text{or } L = \frac{100 \times 240}{150} \\ = 160 \text{ J g}^{-1}.$$

- (c) (i) Live wire.
(ii) Earth wire.
- (d) (i) Isobars are atoms of different elements which have the same mass number A , but different atomic number Z .
(ii) ${}^{14}_6\text{C}$ and ${}^{14}_7\text{N}$ are isobars.
- (e) The advantages of electromagnets over permanent magnets are :
(i) The strength of magnetic field of an electromagnet can easily be changed by changing the magnitude of current or the number of windings in its solenoid.
(ii) The polarity of the electromagnet can be reversed easily by reversing the direction of current in its solenoid.

SECTION-II

Answer 5.

- (a) (i) The S.I. unit of work is joule (J) and C.G.S. unit is erg.

$$1 \text{ joule} = 1 \text{ newton} \times 1 \text{ metre} \\ = 10^5 \text{ dyne} \times 100 \text{ cm} \\ = 10^7 \text{ dyne cm} \\ (\because 1 \text{ dyne cm} = 1 \text{ erg})$$

$$= 10^7 \text{ erg}$$

$$\text{or } 1 \text{ J} = 10^7 \text{ erg}$$

- (ii) We know that,

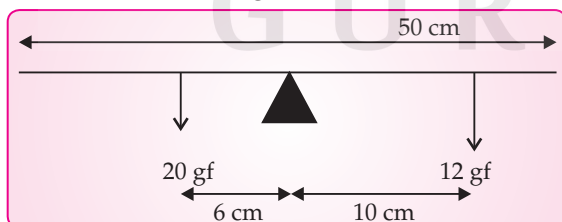
$$W = FS \cos \theta$$

For maximum positive work, $\cos \theta$ should be maximum.

$$\text{Maximum value of } \cos \theta = 1$$

$$\therefore \theta = 0^\circ.$$

- (b) (i) The force of 12 gf causes a clockwise moment.



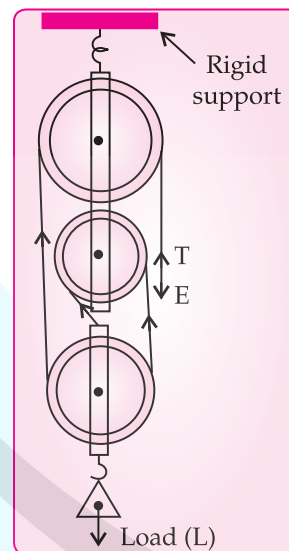
- (ii) Clockwise moment
 $= 12 \times 10 \text{ gf cm} = 120 \text{ gf cm}$
 Anti-clockwise moment
 $= 20 \times 6 = 120 \text{ gf cm}$
 \therefore Clockwise moment
 $=$ Anti-clockwise moment
 \therefore Yes, the rod is in equilibrium.

- (iii) If the direction of 20 gf force is reversed, it will also create a clockwise moment.

\therefore Resultant moment

$$= (120 + 120) \text{ gf cm (clockwise)} \\ = 240 \text{ gf cm}$$

- (c) (i) The diagram is shown below :

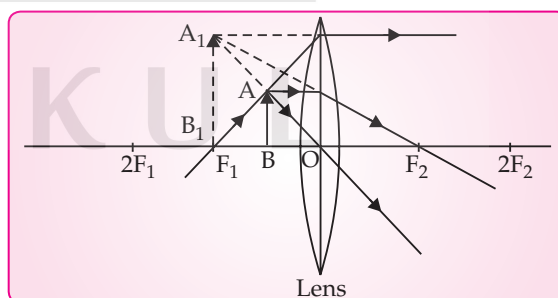


(ii) $M.A. = \frac{\text{Load}}{\text{Effort}} = \frac{150}{60} = 2.5$

- (iii) No, the pulley system is not ideal because $M.A. < V.R.$

Answer 6.

- (a) (i) The angle through which the incident ray deviates and emerges out of the prism is 90° .
 (ii) Refracting Periscope.
 (iii) The surface AB of the prism behaves as a mirror.
- (b) A_1B_1 is the image formed.



- (c) (i) Given : Object distance (u) = -12 cm
 Focal length (f) = +8 cm (convex lens)
 Using the relation,

$$\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$$

$$\text{or } \frac{1}{v} - \frac{1}{(-12)} = \frac{1}{8}$$

$$\text{or } \frac{1}{v} + \frac{1}{12} = \frac{1}{8}$$

$$\text{or } \frac{1}{v} = \frac{1}{8} - \frac{1}{12} = \frac{3-2}{24} = \frac{1}{24}$$

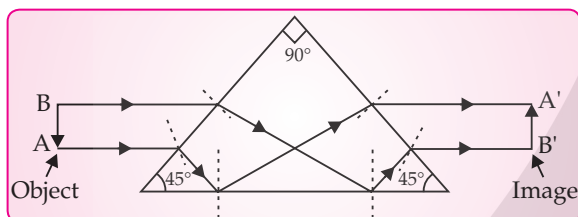
$$\text{or } v = +24 \text{ cm}$$

Therefore, the image is formed at a distance of 24 cm behind the lens (or on the other side).

(ii) The image is real, inverted and magnified.

Answer 7.

(a) The diagram is shown below :



(b) (i) Forced vibration.

(ii) Resonance.

(iii) The paper rider flies off when the stem of the tuning fork B is touched to the box because the frequency of vibration of tuning fork B is equal to the natural frequency of vibration of the stretched wire holding the paper rider and resonance occurs.

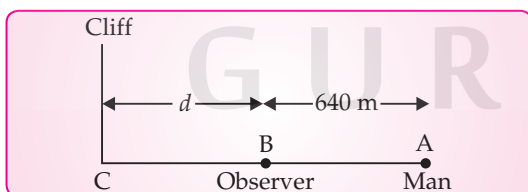
(c) (i) The person on the shore hears the first direct sound after 2 s from the observer.

∴ Distance between observer on ship and man on shore

$$= v \times t_1 \\ = 320 \times 2 = 640 \text{ m}$$

(ii) Let the distance between the cliff and the observer be d metre.

Therefore, the second sound heard by the man on the shore travels a total distance of



$$(d + d + 640) \text{ m} = (2d + 640) \text{ m}$$

Time taken, $t_2 = 3 \text{ s}$

∴ Speed of sound

$$= \frac{\text{Total distance travelled}}{\text{Time taken}}$$

$$\text{or } 320 = \frac{2d + 640}{3}$$

$$\text{or } 960 = 2d + 640$$

$$\text{or } 2d = 960 - 640 = 320$$

$$\therefore d = \frac{320}{2} = 160 \text{ m}$$

Answer 8.

(a) (i) Given : Power (P) = 5 kW = 5000 W, V = 200 volt

$$\therefore \text{Current (I)} = \frac{P}{V} \\ = \frac{5000}{200} = 25 \text{ A}$$

The 8 A fuse cannot be used with the above appliance because it draws a current of 25 A and the fuse will blow off.

(ii) (1) Fuse, (2) Switch.

(b) (i) 6Ω and 3Ω resistances are connected in parallel.

$$\therefore \frac{1}{R_1} = \frac{1}{6} + \frac{1}{3} \\ = \frac{1+2}{6} = \frac{3}{6} = \frac{1}{2}$$

$$\text{or } R_1 = 2 \Omega$$

4Ω and 12Ω resistances are connected in parallel.

$$\therefore \frac{1}{R_2} = \frac{1}{4} + \frac{1}{12} \\ = \frac{3+1}{12} = \frac{4}{12} = \frac{1}{3}$$

$$\text{or } R_2 = 3 \Omega$$

Now, R_1 and R_2 are connected in series.

∴ Equivalent resistance between A and B = $(2 + 3) \Omega = 5 \Omega$.

(ii) Resistivity of a substance is its characteristic property and it does not change with the change in the thickness of the wire.

(c) (i) Electrical energy consumed daily = Power \times Time = $2 \text{ kW} \times 2 \text{ h} = 4 \text{ kWh}$

Electrical energy consumed in one week

$$= 4 \text{ kWh} \times 7 = 28 \text{ kWh}$$

∴ Total cost for running it for one week

$$= ₹ 4.25 \times 28 = ₹ 119$$

(ii) Fuse is necessary in power circuits to limit threats to human life and property damage due to excessive current or faulty appliance that may get connected to the power circuit.

Answer 9.

(a) (i) The change from solid state to a liquid state at a constant temperature is called melting.

(ii) Since, temperature remains constant during change of phase, the average kinetic energy does not change.

(iii) The energy absorbed during phase change is called latent heat of fusion.

- (b) (i) Difference between heat capacity and specific heat capacity :

| Heat Capacity | Specific Heat Capacity |
|--|--|
| 1. It is the amount of heat energy required to raise the temperature of entire body by 1°C . | 1. It is the amount of heat energy required to raise the temperature of unit mass of body by 1°C . |
| 2. Its S.I. unit is JK^{-1} . | 2. Its S.I. unit is $\text{Jkg}^{-1}\text{K}^{-1}$. |

- (ii) Heat capacity of a body

$$= \text{Mass of the body} \times \text{Specific heat capacity}$$

or $C' = m \times c$

$$c = \frac{C'}{m}$$

- (c) Given :

For hot body :

170 g water at 50°C changes to water at 5°C .

$$m = 170 \text{ g} = \frac{170}{1000} \text{ kg}, c = 4200 \text{ J kg}^{-1} \text{ }^{\circ}\text{C}^{-1},$$

$$\Delta T = (50 - 5)^{\circ}\text{C} = 45^{\circ}\text{C}$$

\therefore Heat lost by water

$$\begin{aligned} &= mc\Delta T \\ &= \frac{170}{1000} \times 4200 \times 45 \text{ J} \\ &= 32130 \text{ J} \end{aligned}$$

For cold body :

Let mass of ice be x kg.

x kg ice at 0°C changes to water at 5°C .

$$\text{Mass } (m) = x \text{ kg}, L = 336000 \text{ J kg}^{-1},$$

$$c = 4200 \text{ J kg}^{-1}\text{ }^{\circ}\text{C}^{-1}, \Delta T = (5 - 0)^{\circ}\text{C} = 5^{\circ}\text{C}$$

\therefore Heat gained by ice

$$\begin{aligned} &= mL + mc\Delta T \\ &= (x \times 336000 + x \times 4200 \times 5) \text{ J} \\ &= (336000x + 21000x) \text{ J} \\ &= 357000x \text{ J}. \end{aligned}$$

When no heat energy is lost to the surroundings,

$$\text{Heat gained} = \text{Heat lost}$$

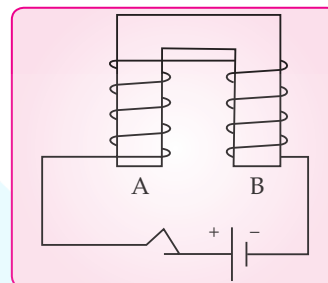
or $357000x = 32130$

$$\begin{aligned} \therefore x &= \frac{32130}{357000} \text{ kg} \\ &= 0.09 \text{ kg} = 90 \text{ g}. \end{aligned}$$

\therefore Mass of ice added = 90 g.

Answer 10.

- (a) (i) Polarity induced at end A is south pole (S) and at end B is north pole (N).



(ii) The strength of magnetic field can be increased by increasing the magnitude of current or by increasing the number of windings in the electromagnet.

(iii) If direction of current is reversed, the polarities at A and B will also be reversed. End A will become north pole (N) and end B will become south pole (S).

- (b) (i) ${}_{92}\text{U}^{235}$ is more easily fissionable than ${}_{92}\text{U}^{238}$.

(ii) Fission of ${}_{92}\text{U}^{238}$ is possible only by fast neutrons whereas the fission of ${}_{92}\text{U}^{235}$ can be achieved even by slow neutrons.

(iii) ${}_{92}\text{U}^{238} \longrightarrow {}_{90}\text{Th}^{234} + {}_2\text{He}^4$ [${}_2\text{He}^4$ is an alpha particle]

- (c) (i) γ - radiation.

(ii) The deflection of radiation C (or β -particle) is more than that of radiation A (or α -particle) because β -particles have less mass than α -particles.

(iii) Radiation A (or α -radiations) causes least biological damage.

(iv) The radiation which is used in carbon dating is radiation C (or β -radiation).

••

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

- A brass ball is hanging from a stiff cotton thread. Draw a neat labelled diagram showing the forces acting on the brass ball and the cotton thread.** [2]
- The distance between two bodies is doubled. How is the magnitude of gravitational force between them affected? ** [2]
- Why is a jack screw provided with a long arm? [2]
- If the power of a motor be 100 kW, at what speed can it raise a load of 50,000 N? [2]
- Which class of lever will always have M.A. > 1 and why? [2]

Question 2.

- Define heat capacity and state its S.I. unit. [2]
- Why is the base of a cooking pan generally made thick? [2]
- A solid of mass 50 g at 150°C is placed in 100 g of water at 11°C, when the final temperature recorded is 20°C. Find the specific heat capacity of the solid. [2]
(Specific heat capacity of water = 4.2 J/g°C)
- How is the refractive index of a material related to :
(i) real and apparent depth?
(ii) velocity of light in vacuum or air and the velocity of light in a given medium? [2]
- State the conditions required for total internal reflection of light to take place. [2]

Question 3.

- Draw a ray diagram to show the refraction of a monochromatic ray through a prism when it suffers minimum deviation. [2]
- The human ear can detect continuous sounds in the frequency range from 20 Hz to 20000 Hz. Assuming that the speed of sound in air is 330 ms^{-1} for all frequencies, calculate the wavelengths corresponding to the given extreme frequencies of the audible range. [2]
- An enemy plane is at a distance of 300 km from a radar. In how much time the radar will be able to detect the plane? Take velocity of radio waves as $3 \times 10^8 \text{ ms}^{-1}$. [2]

** Answer is not given due to change in the present syllabus.

- How is the frequency of a stretched string related to :
(i) its length?
(ii) its tension? [2]

- Define specific resistance and state its S.I. unit. [2]

Question 4.

- An electric bulb of resistance 500Ω , draws a current of 0.4 A. Calculate the power of the bulb and the potential difference at its end. [2]
- State two causes of energy loss in a transformer. [2]
- State two characteristics of a good thermion emitter.** [2]
- State two factors upon which the rate of emission of thermions depends.** [2]
- When does the nucleus of an atom tend to be radioactive? [2]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section

Question 5.

- A uniform half metre rule balances horizontally on a knife edge at 29 cm mark when a weight of 20 gf is suspended from one end. [3]
(i) Draw a diagram of the arrangement.
(ii) What is the weight of the half metre rule?
- (i) A boy uses a single fixed pulley to lift a load of 50 kgf to some height. Another boy uses a single movable pulley to lift the same load to the same height. Compare the effort applied by them. Give a reason to support your answer.
(ii) How does uniform circular motion differ from uniform linear motion?
(iii) Name the process used for producing electricity using nuclear energy. [3]
- A pulley system with V.R. = 4 is used to lift a load of 175 kgf through a vertical height of 15 m. The effort required is 50 kgf in the downward direction. ($g = 10 \text{ N kg}^{-1}$)
Calculate :
(i) Distance moved by the effort.
(ii) Work done by the effort.
(iii) M.A. of the pulley system.
(iv) Efficiency of the pulley system. [4]

Question 6.

- (a) (i) How is the transference of heat energy by radiation prevented in a calorimeter ?
 (ii) You have a choice of three metals A, B and C, of specific heat capacities $900 \text{ J kg}^{-1} \text{ } ^\circ\text{C}^{-1}$, $380 \text{ J kg}^{-1} \text{ } ^\circ\text{C}^{-1}$ and $460 \text{ J kg}^{-1} \text{ } ^\circ\text{C}^{-1}$ respectively, to make a calorimeter. Which material will you select ? Justify your answer.

[3]

- (b) Calculate the mass of ice needed to cool 150 g of water contained in a calorimeter of mass 50 g at 32°C such that the final temperature is 5°C .

Specific heat capacity of calorimeter = $0.4 \text{ J/g}^\circ\text{C}$ Specific heat capacity of water = $4.2 \text{ J/g}^\circ\text{C}$ Latent heat capacity of ice = 330 J/g .

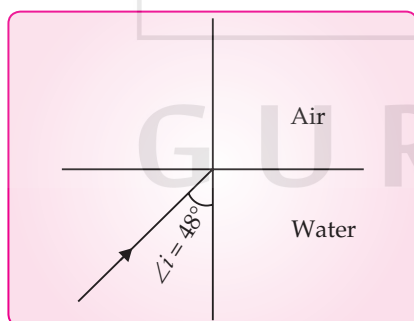
[3]

- (c) (i) Name the radiations which are absorbed by greenhouse gases in the earth's atmosphere.
 (ii) A radiation X is focused by a particular device on the bulb of a thermometer and mercury in the thermometer shows a rapid increase. Name the radiation X.
 (iii) Name two factors on which the heat energy liberated by a body depends.

[4]

Question 7.

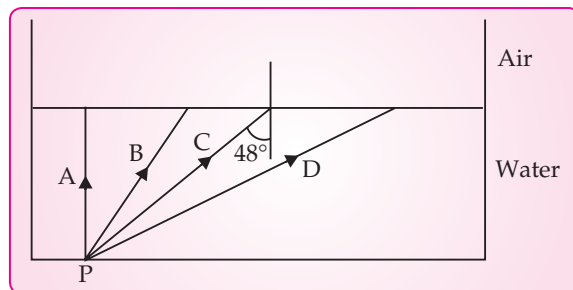
- (a) A lens forms an upright and diminished image of an object when the object is placed at the focal point of the given lens.
 (i) Name the lens.
 (ii) Draw a ray diagram to show the image formation.
 (b) A ray of light travels from water to air as shown in the diagram given below :



- (i) Copy the diagram and complete the path of the ray. Given the critical angle for water is 48° .
 (ii) State the condition so that total internal reflection occurs in the above diagram.
 (c) The diagram below shows a point source P inside a water container. Four rays A, B, C, D starting from the source P are shown up to the water surface.

[3]

[4]



- (i) Show in the diagram the path of these rays after striking the water surface. The critical angle for water air surface is 48° .
 (ii) Name the phenomenon which the rays B and D exhibit.

Question 8.

- (a) Name the factor that determines :

(i) Loudness of the sound heard.

(ii) Quality of the note.

(iii) Pitch of the note.

[3]

- (b) (i) What are damped vibrations ?

(ii) Give one example of damped vibrations.

(iii) Name the phenomenon that causes a loud sound when the stem of a vibrating tuning fork is kept pressed on the surface of a table.

[3]

- (c) (i) A wire of length 80 cm has a frequency of 256 Hz. Calculate the length of a similar wire under similar tension, which will have frequency 1024 Hz.

(ii) A certain sound has a frequency of 256 hertz and a wavelength of 1.3 m.

(1) Calculate the speed with which this sound travels.

(2) What difference would be felt by a listener between the above sound and another sound travelling at the same speed, but of wavelength 2.6 m ?

[4]

Question 9.

- (a) (i) Name the colour code of the wire which is connected to the metallic body of an appliance.

(ii) Draw the diagram of a dual control switch when the appliance is switched 'ON'.

[3]

- (b) (i) Which particles are responsible for current in conductors ?

(ii) To which wire of a cable in a power circuit should the metal case of a geyser be connected ?

(iii) To which wire should the fuse be connected ?

[3]

- (c) (i) Explain the meaning of the statement 'current rating of a fuse is 5 A'.

(ii) In the transmission of power the voltage of power generated at the generating stations is stepped up from 11 kV to 132 kV before it is transmitted. Why ?

[4]

Question 10.**

- (a) Answer the following questions based on a hot cathode ray tube.
- (i) Name the charged particles.
- (ii) State the approximate voltage used to heat the filament.
- (iii) What will happen to the beam when it passes through the electric field? [3]

- (b) State three factors on which the rate of emission of electrons from a metal surface depends. [3]
- (c) (i) What are free electrons?
- (ii) Why do they not leave the metal surface on their own?
- (iii) How can they be made to leave the metal surface? (State any two ways). [4]

ANSWERS**SECTION-I****Answer 1.**

- (c) A jack screw is provided with a long arm to increase the perpendicular distance of the point of application of force from the axis of rotation, so that we can apply a small force to rotate the jack to lift the heavy load.

- (d) Given : Power = 100 kW = 100×10^3 W = 10^5 W

$$\text{Force (Weight)} = 50,000 \text{ N} = 5 \times 10^4 \text{ N}$$

$$\text{Since, Power} = \text{Force} \times \text{Average speed}$$

$$\therefore \text{Average speed} = \frac{\text{Power}}{\text{Force}}$$

$$= \frac{10^5}{5 \times 10^4} \text{ ms}^{-1}$$

$$= \frac{10 \times 10^4}{5 \times 10^4} \text{ ms}^{-1} = 2 \text{ ms}^{-1}$$

Therefore, at a speed of 2 ms^{-1} the motor can raise a load of 50,000 N.

- (e) A class II lever will always have M.A. > 1, because the load lies between the fulcrum and the effort. Hence, the effort arm is always longer than the load arm.

$$\text{Since, M.A.} = \frac{\text{Effort arm}}{\text{Load arm}}$$

$$\text{and Effort arm} > \text{Load arm}$$

$$\therefore \text{M.A.} > 1$$

Answer 2.

- (a) The amount of heat energy needed to raise the temperature of a body by 1°C (or 1 K) is called the heat capacity or thermal capacity of the body. Its S.I. unit is JK^{-1} .
- (b) The base of a cooking pan is made thick to increase its heat capacity so that it gets heated slowly and imparts sufficient heat energy at a slow rate to the food for its cooking. It also helps to keep the cooked food warm for a long time.
- (c) Given : For solid (Hot body) : $m_1 = 50 \text{ g}$, $T_1 = 150^\circ\text{C}$, $T = 20^\circ\text{C}$

Fall in temperature of solid,

$$\Delta T_1 = (150 - 20)^\circ\text{C}$$

$$= 130^\circ\text{C}$$

$$c_1 = ?$$

For water (Cold body) : $m_2 = 100 \text{ g}$, $T_2 = 11^\circ\text{C}$, $T = 20^\circ\text{C}$

Rise in temperature of water,

$$\Delta T_2 = (20 - 11)^\circ\text{C}$$

$$= 9^\circ\text{C}$$

$$c_2 = 4.2 \text{ Jg}^{-1}^\circ\text{C}^{-1}$$

Heat lost by hot body

$$= m_1 c_1 \Delta T_1$$

$$= 50 \times c_1 \times 130 \text{ joule}$$

Heat gained by cold body

$$= m_2 c_2 \Delta T_2$$

$$= 100 \times 4.2 \times 9 \text{ joule}$$

From the principle of calorimetry, if the system is fully insulated, then,

Heat lost by hot body

$$= \text{Heat gained by cold body}$$

$$\text{or } 50 \times c_1 \times 130 = 100 \times 4.2 \times 9$$

$$\text{or } c_1 = \frac{100 \times 4.2 \times 9}{50 \times 130} \text{ Jg}^{-1}^\circ\text{C}^{-1}$$

$$= 0.58 \text{ Jg}^{-1}^\circ\text{C}^{-1}$$

- (d) Let μ be the refractive index of the material.

$$(i) \mu = \frac{\text{Real depth}}{\text{Apparent depth}}$$

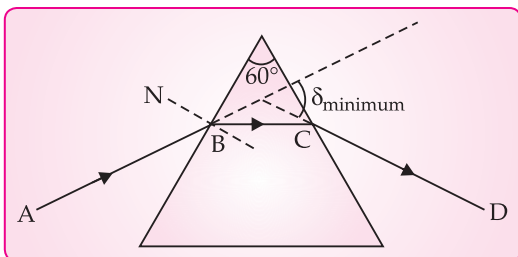
$$(ii) \mu = \frac{\text{Speed of light in vacuum or air } (c)}{\text{Speed of light in medium } (v)}$$

- (e) 1. The light must travel from a denser to a rarer medium.
2. The angle of incidence must be greater than the critical angle for the given pair of media.

Answer 3.

- (a) For minimum deviation, refracted ray (BC) must be parallel to the base of the prism.

** Answer is not given due to change in the present syllabus.



- (b) For the lower extreme frequency of audible range :

$$\text{Frequency } (f_1) = 20 \text{ Hz}$$

$$\text{Speed of sound in air } (v) = 330 \text{ ms}^{-1}$$

$$\therefore \text{Wavelength } (\lambda_1) = \frac{v}{f_1} \\ = \frac{330}{20} \text{ m} = 16.5 \text{ m}$$

For the upper extreme frequency of audible range :

$$\text{Frequency } (f_2) = 20,000 \text{ Hz}$$

$$\text{Speed of sound in air } (v) = 330 \text{ ms}^{-1}$$

$$\therefore \text{Wavelength } (\lambda_2) = \frac{v}{f_2} \\ = \frac{330}{20,000} \text{ m} \\ = 0.0165 \text{ m}$$

- (c) Given : Distance (d) = 300 km = 300×10^3 m
 $= 3 \times 10^5$ m

$$\text{Velocity } (v) \text{ of radio waves} = 3 \times 10^8 \text{ ms}^{-1}$$

Time taken by radar to detect the plane,

$$t = \frac{2d}{v} = \frac{2 \times 3 \times 10^5}{3 \times 10^8} \text{ s} \\ = 2 \times 10^{-3} \text{ s}$$

- (d) (i) The frequency of vibration of a stretched string is inversely proportional to its length, $(f \propto \frac{1}{l})$.

(ii) The frequency of vibration of a stretched string is directly proportional to the square root of the tension applied on the string, $(f \propto \sqrt{T})$.

- (e) The specific resistance of a material is the resistance of a wire of that material of unit length and unit area of cross-section.

Its S.I. unit is ohm-metre ($\Omega \text{ m}$).

Answer 4.

- (a) Given : Resistance (R) = 500 Ω , Current (I) = 0.4 A

$$\text{Power } (P) = I^2 R$$

$$= (0.4)^2 \times 500 \text{ W} = 80 \text{ W}$$

$$\text{Potential difference at its ends } (V)$$

$$= IR$$

$$= 0.4 \times 500 \text{ V} = 200 \text{ V}$$

- (b) The two causes of energy loss in a transformer are :

(i) Energy loss due to induced (or eddy) currents in the core.

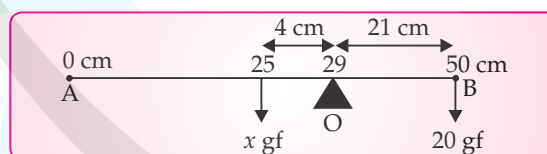
(ii) Energy loss due to heat produced in coils (copper loss).

- (e) The nucleus of an atom becomes radioactive if the nucleus is large (*i.e.*, atomic number > 82) or if the number of neutrons is much more than the number of protons as compared to a normal stable atom.

SECTION-II

Answer 5.

- (a) (i) Let the weight of the half metre rule be x gf and it acts at the 25 cm mark (centre of gravity).



- (ii) Anti-clockwise moment (ACWM)

$$= x \times 4 \text{ gf cm}$$

Clockwise moment (CWM)

$$= 20 \times 21 \text{ gf cm}$$

In equilibrium,

$$\text{ACWM} = \text{CWM}$$

$$\text{or } x \times 4 = 20 \times 21$$

$$\therefore x = \frac{20 \times 21}{4} \text{ gf} = 105 \text{ gf}$$

The weight of the half metre rule is 105 gf.

- (b) (i) For single fixed pulley,

$$\text{Load } (L) = 50 \text{ kgf}$$

$$\text{Mechanical Advantage (M.A.)} = 1$$

$$\text{Since, } \text{M.A.} = \frac{\text{Load}}{\text{Effort}}$$

\therefore Effort (E_1) applied

$$= \frac{\text{Load}}{\text{M.A.}} = \frac{50}{1} = 50 \text{ kgf}$$

For a single movable pulley,

$$L = 50 \text{ kgf}$$

$$\text{M.A.} = 2$$

\therefore Effort (E_2) applied

$$= \frac{\text{Load}}{\text{M.A.}} = \frac{50}{2} = 25 \text{ kgf}$$

Ratio of effort applied,

$$E_1 : E_2 = 50 : 25 = 2 : 1$$

- (ii) In uniform linear motion, the speed and velocity are constant and acceleration is zero, whereas in a uniform circular motion, the velocity is variable (even though speed is uniform), so, it is an accelerated motion.

(iii) Electricity is produced using nuclear energy by carrying out controlled chain reaction of nuclear fission in a nuclear reactor.

(c) Given : Velocity Ratio (V.R.) = 4

$$\begin{aligned}\text{Load (L)} &= 175 \text{ kgf} \\ &= 175 \times 10 \text{ N} = 1750 \text{ N}\end{aligned}$$

$$\begin{aligned}\text{Displacement of load (d}_2\text{)} \\ &= 15 \text{ m}\end{aligned}$$

$$\begin{aligned}\therefore \text{Effort (E)} &= 50 \text{ kgf} \\ &= 50 \times 10 \text{ N} = 500 \text{ N} \\ g &= 10 \text{ N kg}^{-1}.\end{aligned}$$

$$(i) \text{ V.R.} = \frac{\text{Distance moved by effort (d}_E\text{)}}{\text{Distance moved by load (d}_L\text{)}}$$

$$\text{or} \quad 4 = \frac{d_E}{15}$$

$$\begin{aligned}\therefore \text{Distance moved by effort (d}_E\text{)} \\ &= 4 \times 15 \text{ m} = 60 \text{ m}\end{aligned}$$

$$\begin{aligned}(ii) \text{ Work done by the effort} \\ &= E \times d_E \\ &= 500 \times 60 \text{ J} = 30000 \text{ J}\end{aligned}$$

$$(iii) \quad \text{M.A.} = \frac{L}{E} = \frac{1750}{500} = 3.5$$

$$\begin{aligned}(iv) \text{ Efficiency } (\eta) &= \frac{\text{M.A.}}{\text{V.R.}} \times 100\% \\ &= \frac{3.5}{4} \times 100\% = 87.5\%\end{aligned}$$

Answer 6.

(a) (i) The outer and the inner surfaces of a calorimeter are highly polished to prevent the transfer of heat by radiation.

(ii) The metal B of specific heat capacity $380 \text{ J kg}^{-1} \text{ }^\circ\text{C}^{-1}$ should be used because it will take the least amount of heat from the contents to attain the temperature of the contents.

(b) Heat energy imparted by calorimeter and water contained in it in cooling from 32°C to 5°C is used in melting ice and then raising the temperature of melted ice from 0°C to 5°C .

For cold body : Ice at 0°C to water at 5°C .

$$\begin{aligned}\text{Heat gained} &= mL + mc\Delta T \\ &= m \times 330 + m \times 4.2 \times (5 - 0) \\ &= 330m + m \times 4.2 \times 5 \\ &= 330m + 21m \\ &= 351m \text{ joule.}\end{aligned}$$

For hot body : (Water + Calorimeter) at 32°C to 5°C .

$$\begin{aligned}\text{Heat lost} &= m_1c_1\Delta T_1 + m_2c_2\Delta T_2 \\ &= 150 \times 4.2 \times (32 - 5) \\ &\quad + 50 \times 0.4 \times (32 - 5) \\ &= 150 \times 4.2 \times 27 + 50 \times 0.4 \times 27 \\ &= 17010 + 540 = 17550 \text{ joule.}\end{aligned}$$

From the principle of calorimetry, if the system is fully insulated then,

$$\begin{aligned}\text{Heat gained by cold body} \\ &= \text{Heat lost by hot body}\end{aligned}$$

$$351m = 17550$$

$$\begin{aligned}\text{or} \quad m &= \frac{17550}{351} \text{ g} \\ &= 50 \text{ g.}\end{aligned}$$

\therefore The mass of ice needed = 50 g.

(c) (i) The radiations absorbed by the green house gases are infra-red radiations of long wavelength.

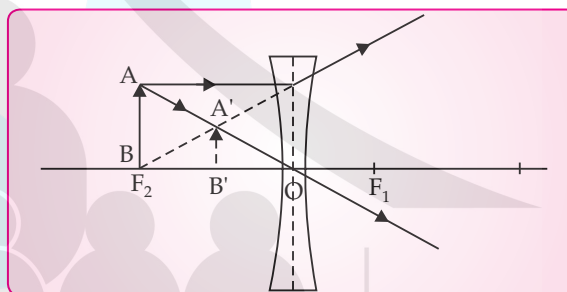
(ii) The radiation X is infra-red radiation.

(iii) The heat energy liberated by a body depends on mass, specific heat capacity and change in temperature of the body.

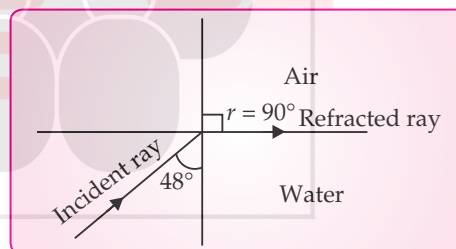
Answer 7.

(a) (i) Concave lens.

(ii)

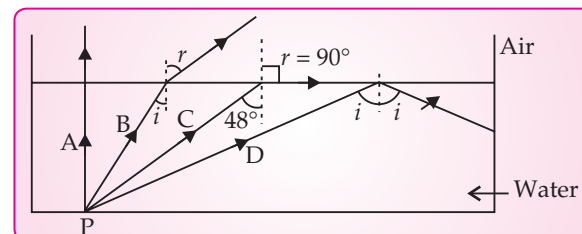


(b) (i)



(ii) For total internal reflection to occur in the above diagram, the angle of incidence must be greater than 48° .

(c) (i)



(ii) The ray B exhibits the phenomenon of refraction.

The ray D exhibits the phenomenon of total internal reflection.

Answer 8.

- (a) (i) Amplitude.
 (ii) Waveform.
 (iii) Frequency.
- (b) (i) The periodic vibrations of decreasing amplitude in the presence of resistive force are called damped vibrations.
 (ii) A tuning fork when stroked on a rubber pad, executes damped vibrations in air.
 (iii) Forced vibrations.
- (c) (i) Given : $f_1 = 256 \text{ Hz}$, $l_1 = 80 \text{ cm}$, $f_2 = 1024 \text{ Hz}$, $l_2 = ?$

$$\text{Since, } f \propto \frac{1}{l}$$

$$\therefore fl = \text{constant}$$

$$\text{or } f_1 l_1 = f_2 l_2$$

$$\text{or } 256 \times 80 = 1024 \times l_2$$

$$\therefore l_2 = \frac{256 \times 80}{1024} \text{ cm}$$

$$= 20 \text{ cm}$$

The length of wire which will have frequency 1024 Hz under similar conditions is 20 cm.

- (ii) Given : $f = 256 \text{ hertz}$, $\lambda = 1.3 \text{ m}$

- (1) Speed of sound (v)

$$= f\lambda$$

$$= 256 \times 1.3 \text{ ms}^{-1}$$

$$= 332.8 \text{ ms}^{-1}$$

- (2) Given : $v = 332.8 \text{ ms}^{-1}$, $\lambda = 2.6 \text{ m}$

$$\therefore \text{Frequency, } f = \frac{v}{\lambda}$$

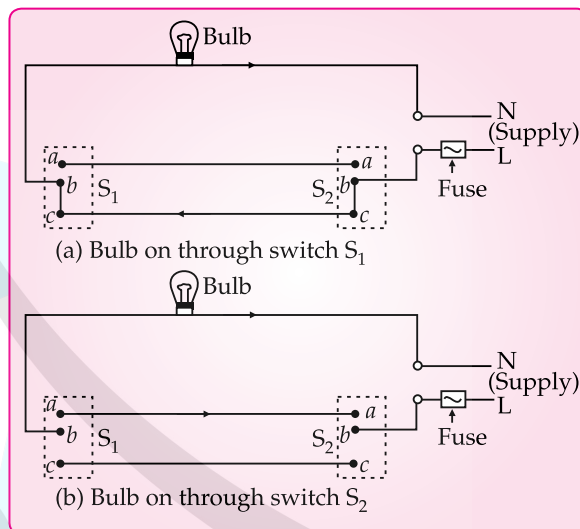
$$= \frac{332.8}{2.6}$$

$$= 128 \text{ hertz.}$$

The second sound of wavelength 2.6 m will have low pitch and sound will be flat compared to the fixed sound of wavelength 1.3 m.

Answer 9.

- (a) (i) The colour code of the earth wire is green or yellow.
 (ii)



- (b) (i) Free electrons
 (ii) Earth wire
 (iii) Live wire
- (c) (i) The current rating of a fuse is 5 A means that if current exceeds 5 A in the circuit, the fuse wire will melt.
 (ii) The voltage is stepped up from 11 kV to 132 kV to minimise the loss of energy in the form of heat in the live wires used for transmission.

GURUKUL

QUESTIONS

SECTION-I (40 Marks)

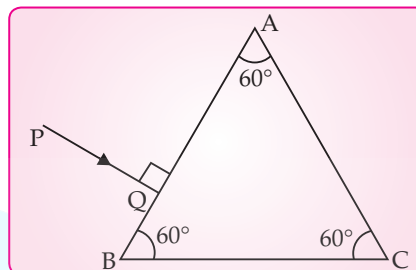
Attempt *all* questions from this Section

Question 1.

- (a) (i) Give an example of a non contact force which is always of attractive nature.**
(ii) How does the magnitude of this non contact force on the two bodies depend on the distance of separation between them ?** [2]
- (b) A boy weighing 40 kgf climbs up a stair of 30 steps each 20 cm high in 4 minutes and a girl weighing 30 kgf does the same in 3 minutes. Compare :
(i) The work done by them.
(ii) The power developed by them. [2]
- (c) With reference to the terms Mechanical Advantage, Velocity Ratio and efficiency of a machine, name and define the term that will not change for a machine of a given design. [2]
- (d) Calculate the mass of ice required to lower the temperature of 300 g of water at 40°C to water at 0°C .
(Specific latent heat of ice = 336 J/g , Specific heat capacity of water = $4.2 \text{ J/g}^{\circ}\text{C}$) [2]
- (e) What do you understand by the following statements : [2]
(i) The heat capacity of the body is 60 JK^{-1} .
(ii) The specific heat capacity of lead is $130 \text{ Jkg}^{-1}\text{K}^{-1}$.

Question 2.

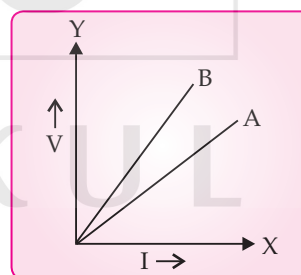
- (a) State two factors upon which the heat absorbed by a body depends. [2]
- (b) A boy uses blue colour of light to find the refractive index of glass. He then repeats the experiment using red colour of light. Will the refractive index be the same or different in the two cases ? Give a reason to support your answer. [2]
- (c) Copy the diagram given below and complete the path of light ray till it emerges out of the prism. The critical angle of glass is 42° . In your diagram mark the angles wherever necessary. [2]



- (d) State the dependence of angle of deviation : [2]
(i) On the refractive index of the material of the prism.
(ii) On the wavelength of light.
- (e) The ratio of amplitude of two waves is 3 : 4. What is the ratio of their : [2]
(i) loudness ?
(ii) frequencies ?

Question 3.

- (a) State two ways by which the frequency of transverse vibrations of a stretched string can be increased. [2]
- (b) What is meant by noise pollution ? Name one source of sound causing noise pollution. [2]
- (c) The V-I graph for a series combination and for a parallel combination of two resistors is shown in the figure below. Which of the two A or B, represents the parallel combination ? Give a reason for your answer. [2]



- (d) A music system draws a current of 400 mA when connected to a 12 V battery.
(i) What is the resistance of the music system ?
(ii) The music system is left playing for several hours and finally the battery voltage drops and the music system stops playing when the current drops to 320 mA. At what battery voltage does the music system stop playing ? [2]
- (e) Calculate the quantity of heat produced in a 20Ω resistor carrying 2.5 A current in 5 minutes. [2]

** Answer is not given due to change in the present syllabus.

Question 4.

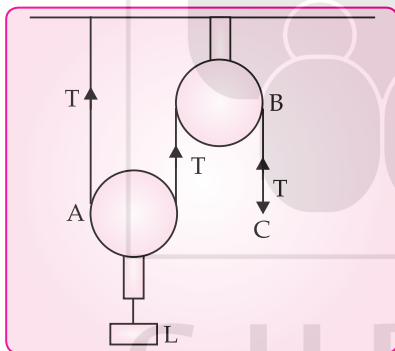
- (a) State the characteristics required of a good thermion emitter.** [2]
- (b) An element ${}_Z\text{S}^A$ decays to ${}_{85}\text{R}^{222}$ after emitting 2α particles and 1β particle. Find the atomic number and atomic mass of the element S. [2]
- (c) A radioactive substance is oxidized. Will there be any change in the nature of its radioactivity? Give a reason for your answer. [2]
- (d) State the characteristics required in a material to be used as an effective fuse wire. [2]
- (e) Which coil of a step up transformer is made thicker and why? [2]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section

Question 5.

- (a) A stone of mass 'm' is rotated in a circular path with a uniform speed by tying a strong string with the help of your hand. Answer the following questions : [3]
- (i) Is the stone moving with a uniform or variable speed?
- (ii) Is the stone moving with a uniform acceleration? In which direction does the acceleration act?
- (iii) What kind of force acts on the hand and state its direction?
- (b) From the diagram given below, answer the questions that follow : [3]



- (i) What kind of pulleys are A and B?
- (ii) State the purpose of pulley B.
- (iii) What effort has to be applied at C to just raise the load $L = 20 \text{ kgf}$?

(Neglect the weight of pulley A and friction)

- (c) (i) An effort is applied on the bigger wheel of a gear having 32 teeth. It is used to turn a wheel of 8 teeth. Where is it used?*
- (ii) A pulley system has three pulleys. A load of 120 N is overcome by applying an effort of 50 N. Calculate the Mechanical Advantage and Efficiency of this system. [4]

** Answer is not given due to change in the present syllabus.

Question 6.

- (a) (i) What is the principle of method of mixtures?
- (ii) What is the other name given to it?
- (iii) Name the law on which the principle is based. [3]
- (b) Some ice is heated at a constant rate, and its temperature is recorded after every few seconds, till steam is formed at 100°C . Draw a temperature time graph to represent the change. Label the two phase changes in your graph. [3]
- (c) A copper vessel of mass 100 g contains 150 g of water at 50°C . How much ice is needed to cool to 5°C ?

Given :

Specific heat capacity of copper = $0.4 \text{ Jg}^{-1} \text{ }^\circ\text{C}^{-1}$

Specific heat capacity of water = $4.2 \text{ Jg}^{-1} \text{ }^\circ\text{C}^{-1}$

Specific latent heat of fusion of ice = 336 Jg^{-1} [4]

Question 7.

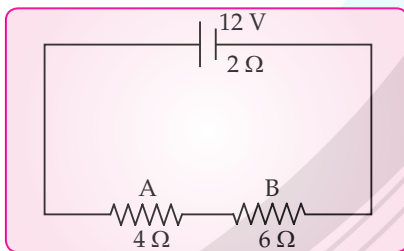
- (a) (i) Write a relationship between angle of incidence and angle of refraction for a given pair of media.
- (ii) When a ray of light enters from one medium to another having different optical densities, it bends. Why does this phenomenon occur?
- (iii) Write one condition where it does not bend when entering a medium of different optical density. [3]
- (b) A lens produces a virtual image between the object and the lens.
- (i) Name the lens.
- (ii) Draw a ray diagram to show the formation of this image. [3]
- (c) What do you understand by the term 'Scattering of light'? Which colour of white light is scattered the least and why? [4]

Question 8.

- (a) (i) Name the waves used for echo depth sounding.
- (ii) Give one reason for their use for the above purpose.
- (iii) Why are the waves mentioned by you not audible to us? [3]
- (b) (i) What is an echo?
- (ii) State two conditions for an echo to take place. [3]
- (c) (i) Name the phenomenon involved in tuning a radio set to a particular station.
- (ii) Define the phenomenon named by you in part (i) above.
- (iii) What do you understand by loudness of sound?
- (iv) In which units is the loudness of sound measured? [4]

Question 9.

- (a) (i) Which particles are responsible for current in conductors ?
 (ii) To which wire of a cable in a power circuit should the metal case of a geyser be connected ?
 (iii) To which wire should the fuse be connected ? [3]
- (b) (i) Name the transformer used in the power transmitting station of a power plant.
 (ii) What type of current is transmitted from the power station ?
 (iii) At what voltage is this current available to our household ? [3]
- (c) A battery of emf 12 V and internal resistance $2\ \Omega$ is connected with two resistors A and B of resistance $4\ \Omega$ and $6\ \Omega$ respectively joined in series.



Find :

[4]

- (i) Current in the circuit.
 (ii) The terminal voltage of the cell.
 (iii) The potential difference across $6\ \Omega$ resistor.
 (iv) Electrical energy spent per minute in $4\ \Omega$ resistor.

Question 10.

- (a) Arrange α , β and γ rays in ascending order with respect to their [3]
 (i) Penetrating power
 (ii) Ionising power
 (iii) Biological effect.
- (b) (i) In a cathode ray tube what is the function of anode ?**
 (ii) State the energy conversion taking place in a cathode ray tube.**
 (iii) Write one use of cathode ray tube.** [3]
- (c) (i) Represent the change in the nucleus of radioactive element when a β particle is emitted.
 (ii) What is the name given to elements with same mass number and different atomic number ?
 (iii) Under which conditions does the nucleus of an atom tend to be radioactive ? [4]

ANSWERS**SECTION-I****Answer 1.**

- (b) (i) Weight of a boy (F_1)
 $= 40\ \text{kgf}$
 Distance covered (d) $= 30 \times \frac{20}{100} = 6\ \text{m}$
 Work done by boy (W_1)
 $= F_1 d$
 $= 40 \times 9.8 \times 6$
 $(\because 1\ \text{kgf} = g = 9.8\ \text{N})$
 $= 2352\ \text{J}$
 Weight of a girl (F_2)
 $= 30\ \text{kgf}$
 Work done by girl (W_2)
 $= F_2 d$
 $= 30 \times 9.8 \times 6$
 $= 1764\ \text{J}$
 On comparing work done by them, we get
 $\frac{W_1}{W_2} = \frac{2352\ \text{J}}{1764\ \text{J}} = \frac{4}{3}$
- (ii) Time taken by a boy (t_1)
 $= 4\ \text{min}$
 $= 4 \times 60 = 240\ \text{sec}$

Power developed by boy (P_1)

$$= \frac{W_1}{t_1} = \frac{2352}{240}$$

$$= 9.8\ \text{W}$$

Time taken by a girl (t_2)

$$= 3\ \text{min}$$

$$= 3 \times 60 = 180\ \text{sec}$$

Power developed by girl (P_2)

$$= \frac{W_2}{t_2} = \frac{1764}{180}$$

$$= 9.8\ \text{W}$$

On comparing power developed by them, we get

$$\frac{P_1}{P_2} = \frac{9.8\ \text{W}}{9.8\ \text{W}} = 1 : 1.$$

- (c) Velocity ratio will not change for a machine of a given design and it can be defined as the ratio of the displacement of the effort to the displacement of the load (in the same given time).
- (d) Mass of water = 300 g
 Specific heat of water = $4.2\ \text{J/g}^\circ\text{C}$
 Specific heat of ice = $336\ \text{J/g}$
 Fall in temperature, $\theta_F = 40 - 0 = 40^\circ\text{C}$
 Heat gained by ice
 $= \text{Heat lost by water}$

** Answer is not given due to change in the present syllabus.

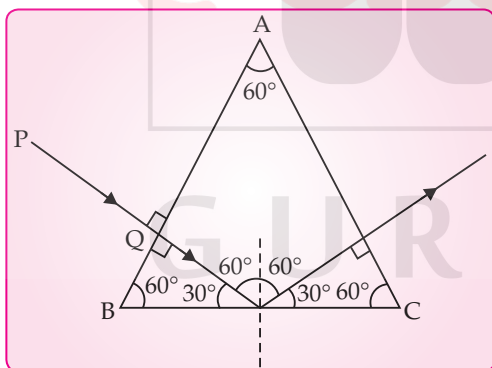
$$\begin{aligned}
 \therefore \text{Mass of ice} \times \text{Specific heat of ice} \\
 &= \text{Mass of water} \times \text{Specific heat of water} \\
 &\quad \times \text{Fall in temperature} \\
 &\quad \text{Mass of water} \times \text{Specific heat of} \\
 \text{Mass of ice} &= \frac{\text{water} \times \theta_F}{\text{Specific heat of ice}} \\
 &= \frac{300 \times 4.2 \times 40}{336} = 150 \text{ g}
 \end{aligned}$$

- (e) (i) The heat capacity of the body is 60 JK^{-1} . This means that the amount of heat energy required to raise the body's temperature by 1 K without going through a change of state is 60 J .
- (ii) The specific heat capacity of lead is $130 \text{ Jkg}^{-1} \text{ K}^{-1}$. This means that the amount of heat energy needed to raise the temperature of 1 kg of lead through 1 K is 130 J .

Answer 2.

- (a) Two factors upon which the heat absorbed by a body depends are :
1. the change in the temperature of the body.
 2. the mass of the body.
- (b) The index of refraction is a function of the wavelength of the light. The wavelength of red light is longer than the wavelength of blue light. Therefore, blue light bends more when it passes from air to glass. As the angle of deviation in both cases will be different, the refractive index will also be different. It will be more in case of blue light than in red light.

(c)

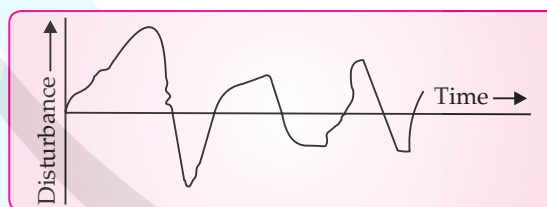


- (d) (i) If the refractive index of the material increases, the angle of deviation also increases.
- (ii) Lesser the wavelength of light, greater is the angle of deviation.
- (e) It is given that the ratio of amplitude of two waves is $3 : 4$.
- (i) As loudness is directly proportional to the square of the amplitude. So, the ratio of the two waves' loudness is $9 : 16$.

(ii) As frequency does not depend upon amplitude. So, the ratio of frequency of the two waves is $1 : 1$.

Answer 3.

- (a) The frequency of transverse vibrations of a stretched string can be increased :
1. by increasing the tension in the string.
 2. by decreasing the length of the vibrating string.
- (b) A noise is a non-periodic (or irregular) disturbance with sudden changes of amplitude and lacking a sense of continuity. It is discordant and unpleasant to the ear. Usually all the sounds of level above 120 dB are termed as noise.



Noise pollution can be defined as the unwanted, unpleasant or disagreeable sound that causes discomfort to living beings.

The sound produced by heavy means of transport causes noise pollution.

- (c) Since the straight line A is less steeper than B, so the straight line A represents small resistance. In a parallel combination, the equivalent resistance is less than in series combination. So, A represents the parallel combination.

(d)

$$\begin{aligned}
 \text{Current (I)} &= 400 \text{ mA} \\
 &= 400 \times 10^{-3} \text{ A}
 \end{aligned}$$

$$\text{Voltage (V)} = 12 \text{ V}$$

(i)

$$V = IR$$

$$\therefore \text{Resistance (R)} = \frac{V}{I} = \frac{12}{400 \times 10^{-3}} = 30 \Omega$$

(ii)

$$R = 30 \Omega$$

$$I = 320 \text{ mA} = 320 \times 10^{-3} \text{ A}$$

$$V = IR = 320 \times 10^{-3} \times 30 = 9.6 \text{ V}$$

$$\text{Current (I)} = 2.5 \text{ A}$$

$$\text{Resistance} = 20 \Omega$$

$$\begin{aligned}
 \text{Time (t)} &= 5 \text{ min} = 5 \times 60 \text{ sec} \\
 &= 300 \text{ sec}
 \end{aligned}$$

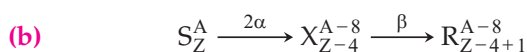
$$\text{Quantity of heat produced (H)}$$

$$= I^2 R t$$

$$= (2.5)^2 \times 20 \times 300$$

$$= 37500 \text{ J} = 37.5 \text{ kJ}$$

Answer 4.



$$\text{Given : } R_{Z-3}^{A-8} = R_{85}^{222}$$

$$\therefore Z - 3 = 85; A - 8 = 222$$

$$\Rightarrow Z = 88; A = 230$$

$$\therefore \text{Atomic number of S} = 88$$

$$\text{Atomic mass of S} = 230$$

(c) When a radioactive substance is oxidized, there will be no change in the nature of its radioactivity. This is because radioactivity is a property of the nucleus and the nucleus of a substance does not get changed if it gets oxidized. (Oxidation is a chemical change involving only the extra nuclear electrons.)

(d) Characteristics required in a material to be used as an effective fuse wire are :

(i) high resistivity (ii) low melting point.

(e) In step up transformer, the primary coil carries more current than the secondary coil. So, to withstand high currents, and to reduce the energy loss the primary coil of transformer should be made thicker.

SECTION-II

Answer 5.

(a) (i) The stone is moving with a uniform speed.
(ii) Yes, the stone is moving with a uniform acceleration, acting radially inward.
(iii) The force which acts on the hand is the centrifugal force. Its direction is opposite to the centripetal force *i.e.*, away from the centre.

(b) (i) A is a single movable pulley.

B is a single fixed pulley.

(ii) It is quite difficult to apply effort in the upward direction, if no fixed pulley B is used. The fixed pulley changes the direction of effort from upwards to downwards, making the application of the effort more convenient and easier.

(iii) Given, $L = 20 \text{ kgf}$

Effort = ?

In equilibrium,

$$L = 2T$$

At C, Effort (E) = T

$$\text{Effort needed} = \frac{L}{2} = \frac{20}{2} = 10 \text{ kgf.}$$

(c) (ii) Mechanical advantage (M.A.)

$$= \frac{\text{Load}}{\text{Effort}} = \frac{120}{50} = 2.4$$

$$\text{Efficiency} = \frac{\text{M.A.}}{\text{V.R.}} \times 100\%$$

Since, Velocity ratio (V.R.)

$$= \text{Number of pulleys} = 3$$

$$\therefore \text{Efficiency} = \frac{2.4}{3} \times 100 = 80\%$$

Answer 6.

(a) (i) According to the principle of mixtures, when a hot body is mixed with a cold body, heat energy passes from the hot body to the cold body, till both the bodies attain the same temperature.

If no heat energy is lost to the surroundings *i.e.*, the system is perfectly insulated then

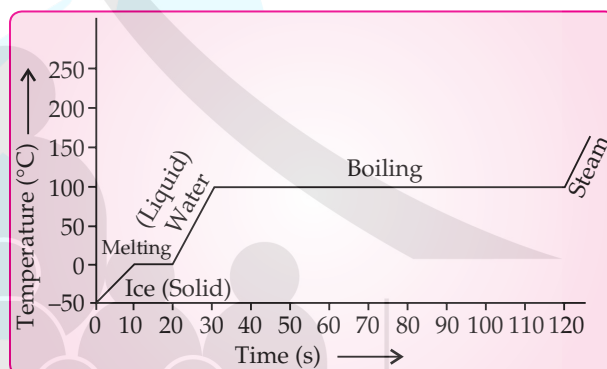
Heat energy lost by the hot body

= Heat energy gained by cold body.

(ii) Principle of calorimetry.

(iii) It is based on the law of conservation of energy.

(b)



(c) Heat energy imparted by vessel

$$= 100 \times 0.4 \times (50 - 5)$$

$$= 1800 \text{ J}$$

Heat energy imparted by water

$$= 150 \times 4.2 \times (50 - 5)$$

$$= 28350 \text{ J}$$

Let m gram of ice be used.

Heat energy taken by ice to melt

$$= m \times 336 \text{ J}$$

Heat energy taken by the melted ice to raise its temperature from 0°C to 5°C

$$= m \times 4.2 \times (5 - 0) = 21m \text{ J}$$

By law of conservation of energy,

Heat energy imparted by vessel and water

= Heat energy taken by ice and melted ice

$$\text{i.e., } 1800 + 28350 = 336m + 21m$$

$$\text{or } 30150 = 357m$$

$$\therefore m = \frac{30150}{357} = 84.45 \text{ g}$$

Thus, 84.45 g of ice is used.

Answer 7.

- (a) (i) The ratio of the sine of the angle of incidence i to the sine of the angle of refraction r is constant for a given pair of media. This constant is called refractive index.

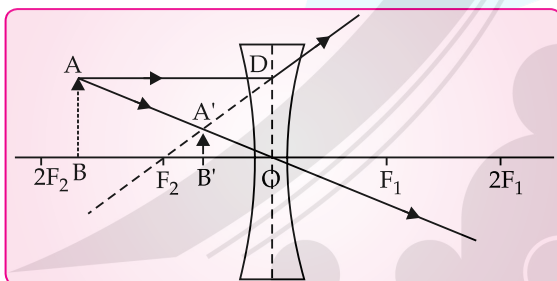
$$\Rightarrow \frac{\sin i}{\sin r} = {}_1\mu_2 \text{ or } {}_1n_2$$

(ii) When a ray of light passes from one medium to another medium, its direction (or path) changes because of change in speed of light while travelling from one medium to another.

(iii) The ray of light which is incident normally on the surface separating the two media, passes undeviated (does not bend). Thus, if angle of incidence $\angle i = 0^\circ$, then angle of refraction $\angle r = 0^\circ$. The deviation of the ray is zero.

- (b) (i) Concave lens.

(ii)



- (c) Scattering of light is the process of absorption and then re-emission of light energy in many different directions, without changing its wave length.

The colour of white light which scattered the least is red. This is because red colour has the longest wavelength 8000 \AA and lowest frequency $3.75 \times 10^{14} \text{ Hz}$.

Answer 8.

- (a) (i) Ultrasonic waves.

(ii) The ultrasonic waves are used because they can travel undeviated through a long distance.

(iii) The ultrasonic waves are not audible to us because they have frequency of more than audible range of frequency 20000 Hz .

- (b) (i) The clear and distinct sound heard after reflection from a distant obstacle (cliff, wall etc.) after the original sound has ceased, is called an echo.

(ii) Conditions for an echo to take place are :

1. The minimum distance between the source of sound and the reflector in air must be 17 m . It

is different in different medium depending upon the speed of sound in that medium.

2. The size of the reflector must be large enough as compared to the wavelength of sound wave.

- (c) (i) Resonance.

(ii) When the frequency of an externally applied periodic force on a body is equal to its natural frequency, the body readily begins to vibrate with an increased amplitude. This phenomenon is known as resonance.

(iii) Loudness is the property by virtue of which a loud sound can be distinguished from a faint one, both having the same pitch and quality.

(iv) The unit of loudness is decibel (dB).

Answer 9.

- (a) (i) Electrons (ii) Earth wire

(iii) Live wire

- (b) (i) Step up transformer

(ii) Alternating current

(iii) 220 V

- (c) (i) Total resistance $= 4 + 6 + 2 = 12 \Omega$

$$I = \frac{\text{Emf}}{\text{Total resistance}} \\ = \frac{12}{12} = 1 \text{ A}$$

- (ii) $V = E - Ir$

$$= 12 - (1 \times 2) = 10 \text{ V}$$

- (iii) $V = IR = 1 \times 6 = 6 \text{ V}$

- (iv) Electrical energy spent

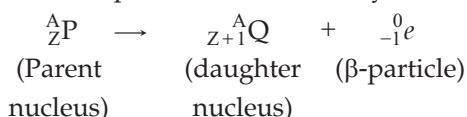
$$= I^2 R t \\ = 1 \times 1 \times 4 \times 60 = 240 \text{ J.}$$

Answer 10.

- (a) (i) $\alpha < \beta < \gamma$ (ii) $\gamma < \beta < \alpha$

(iii) $\alpha < \beta < \gamma$

- (c) (i) In emitting a β -particle, the number of nucleons in the nucleus remains same, but the number of neutrons is decreased by one and the number of protons is increased by one.



- (ii) Isobars

(iii) When the number of neutrons is 1.3 to 1.5 times the number of protons in the nucleus of an atom, nucleus has more mass or nucleus has excess energy under such condition it tends to be radioactive.

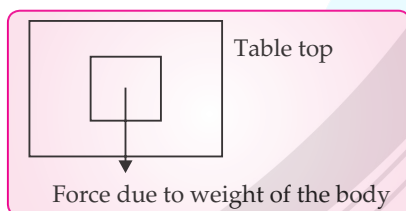
QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

- (a) When a body is placed on a table top, it exerts a force equal to its weight downwards on the table top but does not move or fall.
 (i) Name the force exerted by the table top.
 (ii) What is the direction of the force? [2]



- (b) (i) Name one factor that affects the lateral displacement of light as it passes through a rectangular glass slab.
 (ii) On reversing the direction of the current in a wire, the magnetic field produced by it gets..... [2]
 (c) (i) On what factor does the position of the centre of gravity of a body depend?
 (ii) What is the S.I. unit of the moment of force? [2]
 (d) Name the factors affecting the turning effect of a body. [2]
 (e) (i) Define equilibrium.
 (ii) In a beam balance when the beam is balanced in a horizontal position, it is in.....equilibrium. [2]

Question 2.

- (a) How is work done by a force measured when the force :
 (i) is in the direction of displacement.
 (ii) is at an angle to the direction of displacement. [2]
 (b) State the energy changes in the following while in use :
 (i) Burning of a candle.
 (ii) A steam engine. [2]
 (c) (i) A scissor is a.....multiplier.
 (ii) 1 kWh =J. [2]
 (d) Explain the motion of a planet around the sun in a circular path. [2]
 (e) Rajan exerts a force of 150 N in pulling a cart at a constant speed of 10 m/s. Calculate the power exerted. [2]

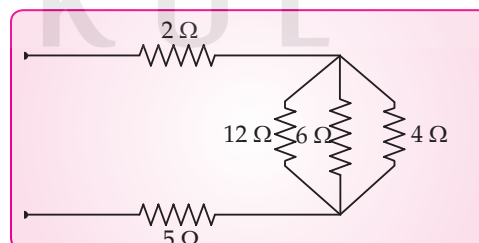
** Answer is not given due to change in the present syllabus.

Question 3.

- (a) (i) Give the expression for mechanical advantage of an inclined plane in terms of the length of an inclined plane.**
 (ii) Name a common device where a gear train is used. [2]
 (b) The speed of light in glass is 2×10^5 km/s. What is the refractive index of glass? [2]
 (c) (i) Draw a graph between displacement and the time for a body executing free vibrations.
 (ii) Where can a body execute free vibrations? [2]
 (d) (i) What happens to the resistivity of semiconductors with the increase of temperature?
 (ii) For a fuse, higher the current rating.....is the fuse wire. [2]
 (e) (i) Name the high energetic invisible electromagnetic waves which help in the study of the structure of crystals.
 (ii) State an additional use of the waves mentioned in part (e) (i). [2]

Question 4.

- (a) Rishi is surprised when he sees water boiling at 115°C in a container. Give reasons as to why water can boil at the above temperature. [2]
 (b) (i) Why does a current carrying, freely suspended solenoid rest along a particular direction?
 (ii) State the direction in which it rests. [2]
 (c) Find the equivalent resistance between points A and B. [2]



- (d) Give two similarities between an A.C. generator and a D.C. motor. [2]
 (e) (i) Why is a cathode ray tube evacuated to a low pressure? **
 (ii) What happens if the negative potential is changed on a grid? ** [2]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section

Question 5.

- (a) Draw a simplified diagram of a lemon crusher, indicating direction of load and effort. [2]
- (b) (i) Name the physical quantity measured in terms of horse power.
 (ii) A nut is opened by a wrench of length 20 cm. If the least force required is 2 N, find the moment of force needed to loosen the nut.
 (iii) Explain briefly why the work done by a fielder when he takes a catch in a cricket match is negative. [4]
- (c) A block and tackle system has V.R. = 5.
 (i) Draw a neat labelled diagram of a system indicating the direction of its load and effort.
 (ii) Rohan exerts a pull of 150 kgf. What is the maximum load he can raise with this pulley system if its efficiency = 75% ? [4]

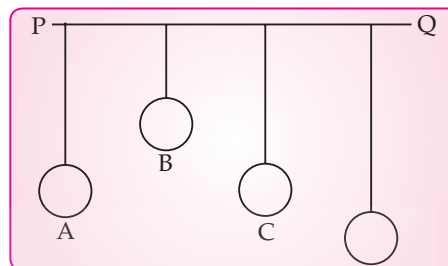
Question 6.

- (a) (i) Where should an object be placed so that a real and inverted image of the same size as the object is obtained using a convex lens ?
 (ii) Draw a ray diagram to show the formation of the image as specified in the part (a) (i). [3]
- (b) (i) Why does the Sun appear red at sunrise ?
 (ii) Name the subjective property of light related to its wavelength. [3]
- (c) Jatin puts a pencil into a glass container having water and is surprised to see the pencil in a different state. [4]
 (i) What change is observed in the appearance of the pencil ?
 (ii) Name the phenomenon responsible for the change.
 (iii) Draw a ray diagram showing how the eye sees the pencil.

Question 7.

- (a) (i) State the safe limit of sound level in terms of decibel for human hearing.
 (ii) Name the characteristic of sound in relation to its waveform. [2]
- (b) A person standing between two vertical cliffs and 480 m from the nearest cliff shouts. He hears the first echo after 3 s and the second echo 2 s later. Calculate :
 (i) The speed of sound.
 (ii) The distance of the other cliff from the person. [3]

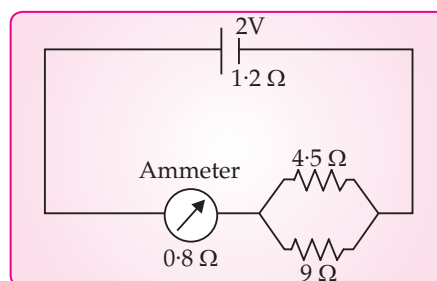
- (c) In the diagram below, A, B, C, D are four pendulums suspended from the same elastic string PQ. The length of A and C are equal to each other while the length of pendulum B is smaller than that of D. Pendulum A is set into a mode of vibrations.



- (i) Name the type of vibrations taking place in pendulums B and D ?
 (ii) What is the state of pendulum C ?
 (iii) State the reason for the type of vibrations in pendulums B and C. [5]

Question 8.

- (a) (i) Name the device used to increase the voltage at a generating station.
 (ii) At what frequency is A.C. supplied to residential houses ?
 (iii) Name the wire in a household electrical circuit to which the switch is connected. [3]
- (b) The relationship between the potential difference and the current in a conductor is stated in the form of a law. [3]
 (i) Name the law.
 (ii) What does the slope of V-I graph for a conductor represent ?
 (iii) Name the material used for making the connecting wire.
- (c) A cell of emf 2 V and internal resistance $1.2\ \Omega$ is connected with an ammeter of resistance $0.8\ \Omega$ and two resistors of $4.5\ \Omega$ and $9\ \Omega$ as shown in the diagram below :



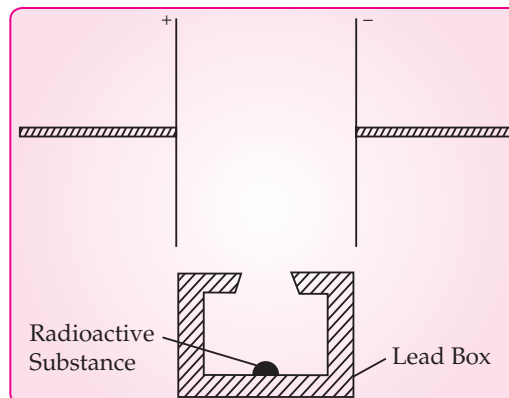
- (i) What would be the reading on the Ammeter ?
 (ii) What is the potential difference across the terminals of the cell ? [4]

Question 9.

- (a) (i) Name a gas caused by the Greenhouse effect.**
 (ii) Which property of water makes it an effective coolant? [2]
- (b) (i) Water in lakes and ponds do not freeze at once in cold countries. Give a reason in support of your answer.
 (ii) What is the principle of Calorimetry?
 (iii) Name the law on which this principle is based.
 (iv) State the effect of an increase of impurities on the melting point of ice. [4]
- (c) A refrigerator converts 100 g of water at 20°C to ice at -10°C in 35 minutes.
 Calculate the average rate of heat extraction in terms of watts.
 Given : Specific heat capacity of ice = $2.1 \text{ J g}^{-1} \text{ }^{\circ}\text{C}^{-1}$
 Specific heat capacity of water = $4.2 \text{ J g}^{-1} \text{ }^{\circ}\text{C}^{-1}$
 Specific Latent heat of fusion of ice = 336 J g^{-1} [4]

Question 10.

- (a) (i) What is thermionic emission? **
 (ii) Name the unit in which the work function of a metal is expressed. [2]



- (b) (i) Complete the diagram as given above by drawing the deflection of radioactive radiations in an electric field.
 (ii) State any two precautions to be taken while handling radioactive substances. [5]
- (c) An atomic nucleus A is composed of 84 protons and 128 neutrons. [3]
 (i) The nucleus A emits an alpha particle and is transformed into nucleus B. What is the composition of nucleus B?
 (ii) The nucleus B emits a beta particle and is transformed into a nucleus C. What is the composition of nucleus C?
 (iii) Does the composition of nucleus C change if it emits gamma radiations?

ANSWERS

SECTION-I

Answer 2.

Answer 1.

- (b) (i) The thickness of glass slab affects the lateral displacement of light as it passes through a rectangular glass slab.
 (ii) Reversed in direction.
- (c) (i) The position of the centre of gravity of a body depends on its shape, i.e., the distribution of mass in it.
 (ii) The S.I. unit of moment of force is newton metre (Nm).
- (d) The factors affecting the turning effects of a body are:
 1. the magnitude of force applied.
 2. the perpendicular distance of the line of action of force from the axis of rotation.
- (e) (i) When a number of forces acting on a body produce no change in its state of rest or of motion, then the body is said to be in equilibrium.
 (ii) Static

- (a) (i) Work done is given by the product of the force (F) and the displacement (d) in the direction of the force.
 i.e., Work done = $F \times d$
 (ii) Work done is measured by the product of the force (F) and the component of displacement (d) in the direction of the force.
 i.e., Work done = $F \times d \cos \theta$
 where θ is the angle which the displacement makes with the direction of the force.
- (b) (i) Chemical energy to the light and heat energy.
 (ii) Chemical to heat energy to mechanical energy.
- (c) (i) Force
 (ii) 3.6×10^6
- (d) The motion of a planet around the sun in a circular path is due to the centripetal force which is provided by the gravitational force of attraction on the planet by the sun.

** Answer is not given due to change in the present syllabus.

- (e) Power exerted = Force \times Average speed
 $= 150 \times 10$
 $= 1500 \text{ W}$

Answer 3.

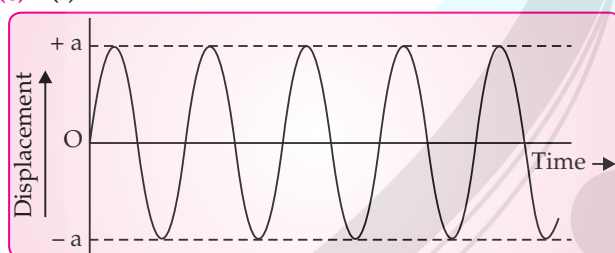
- (b) Given,

$$\begin{aligned}\text{Speed of light in glass} &= 2 \times 10^5 \text{ km/s} \\ &= 2 \times 10^5 \times 10^3 \text{ m/s} \\ &= 2 \times 10^8 \text{ m/s}\end{aligned}$$

Refractive index of glass

$$\begin{aligned}&= \frac{\text{Speed of light in vacuum}}{\text{Speed of light in glass}} \\ &= \frac{3 \times 10^8}{2 \times 10^8} = 1.5\end{aligned}$$

- (c) (i)

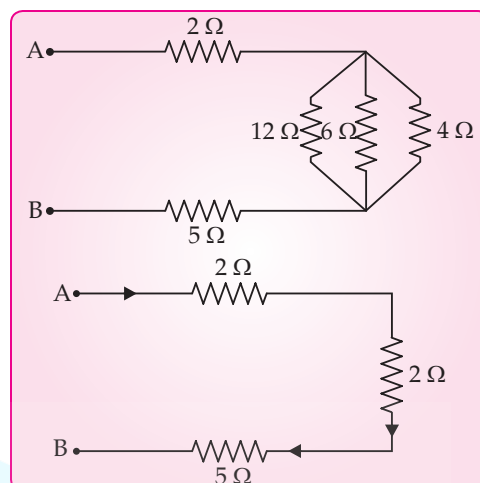


- (ii) A body can execute free vibrations in vacuum because the presence of any medium offers some resistance, as a result of which the amplitude of vibrations does not remain constant.
- (d) (i) The resistivity of semiconductors decreases with increase in temperature.
- (ii) Thicker
- (e) (i) X-rays
- (ii) They are used for the detection of fracture in bones.

Answer 4.

- (a) Water boils at higher temperature because of the increase in pressure or the presence of some impurity. More the impurity or pressure, more will be the boiling point.
- (b) (i) This is because the current carrying freely suspended solenoid behaves like a bar magnet.
- (ii) It rests in the geographic North-South direction.
- (c) Three resistances 12Ω , 6Ω and 4Ω are connected in parallel.
- \therefore The equivalent resistance in parallel is given by

$$\begin{aligned}\frac{1}{R_p} &= \frac{1}{12} + \frac{1}{6} + \frac{1}{4} \\ \frac{1}{R_p} &= \frac{1+2+3}{12} \\ R_p &= \frac{12}{(1+2+3)} = 2 \Omega\end{aligned}$$



Now, 2Ω , R_p and 5Ω are in series.

Thus, the equivalent resistance between A and

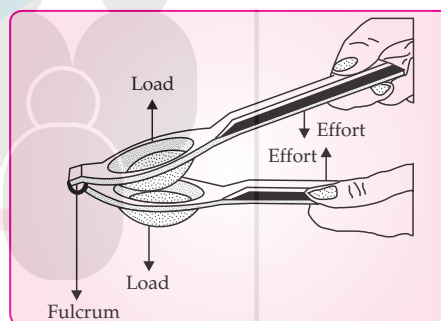
$$B = 2 \Omega + 2 \Omega + 5 \Omega = 9 \Omega.$$

- (d) Similarities between A.C. generator and D.C. motor are :
- (i) armature coil rotates in a magnetic field.
- (ii) the external circuit is connected to two carbon brushes.

SECTION-II

Answer 5.

- (a)



- (b) (i) The physical quantity is power.

$$1 \text{ H.P.} = 746 \text{ W}$$

- (ii) Given : Distance = 20 cm
- $$= \frac{20}{100} = 0.2 \text{ m}$$

$$\text{Force} = 2 \text{ N}$$

Moment of the force

$$= \text{Force} \times \text{Distance}$$

$$= 2 \times 0.2 \text{ Nm} = 0.4 \text{ Nm}$$

- (iii) Here, the fielder uses a force to oppose the motion of the ball.

Thus, $\theta = 180^\circ$

We know,

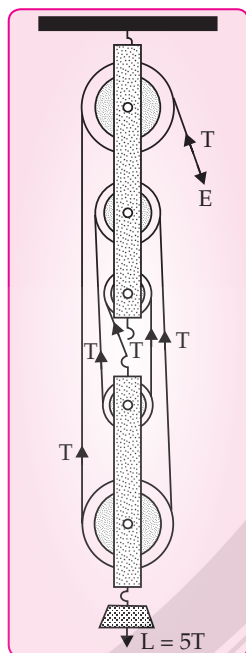
$$\begin{aligned}\text{work done} &= \text{force (F)} \times \\ &\quad \text{displacement (d)} \times \cos 180^\circ\end{aligned}$$

$$= -F \times d$$

$$(\because \cos 180^\circ = -1)$$

Thus, work done is negative.

(c) (i)



(ii)

$$\text{Efficiency} = 75\%$$

$$\text{V.R.} = 5$$

$$\text{Efficiency} = \frac{\text{M.A.}}{\text{V.R.}}$$

$$\text{Thus, } \frac{75}{100} = \frac{\text{M.A.}}{5}$$

$$\text{Or M.A.} = 3.75$$

$$\text{Now, M.A.} = \frac{\text{Load}}{\text{Effort}}$$

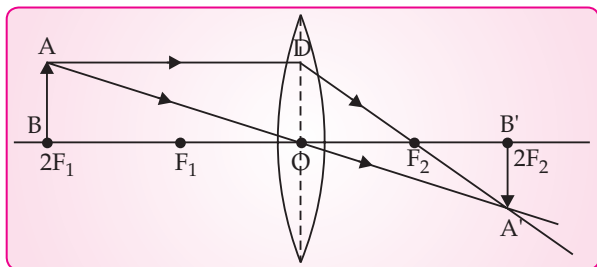
$$3.75 = \frac{\text{Load}}{150}$$

$$\text{Thus, Load} = 3.75 \times 150 = 562.5 \text{ kgf.}$$

Answer 6.

(a) (i) The object must be placed on the principal axis of a convex lens at a distance twice the focal length of the lens i.e., at $2F_1$.

(ii)



(b) (i) At sunrise, light from the sun has to travel a very long distance to reach the observer on earth.

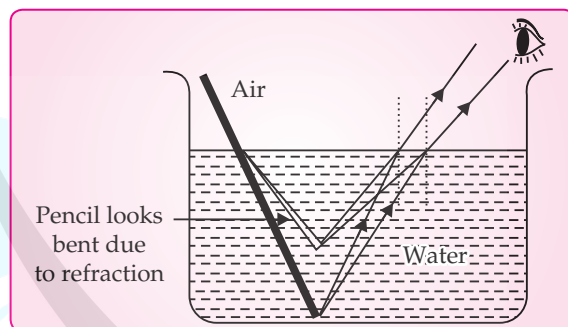
The light while travelling from sun loses blue light due to scattering while the red light is scattered very little because of its long wavelength. So the sun looks red during sunrise.

(ii) Colour of light.

(c) (i) He sees that the pencil appears to be bent.

(ii) Refraction of light

(iii)



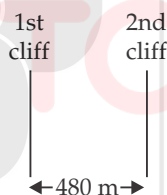
Answer 7.

(a) (i) The safe limit of sound level for human hearing is in the range of 0 to 80 dB.

(ii) The characteristic of sound in relation to its waveform is quality or timbre.

(b) The first echo is heard from the nearest cliff.

The total distance travelled by sound to reach the first cliff and then come back = $2 \times 480 \text{ m} = 960 \text{ m}$, Time taken = 3 second



$$(i) \text{ Speed of sound} = \frac{\text{Total distance travelled}}{\text{Time taken}}$$

$$= \frac{960}{3} \text{ m/s} = 320 \text{ m/s}$$

(ii) Time taken for the second echo

$$= (3 + 2) \text{ second} = 5 \text{ second}$$

Distance of the second cliff from the observer

$$= \frac{(\text{speed} \times \text{time})}{2} = \frac{(320 \times 5)}{2} = 800 \text{ m}$$

(c) (i) Forced vibration

(ii) Pendulum C is in a state of resonance with Pendulum A. Also they are in the same phase.

(iii) This is because the time period of pendulum B is different from that of C (since length of the pendulums B and C are different).

Answer 8.

(a) (i) Step up Transformer

(ii) 50 hertz

(iii) Live wire

(b) (i) Ohm's law

(ii) The slope of the graph represent resistance of the conductor.

(iii) Copper

(c) The resistance of 4.5Ω and 9Ω are connected in parallel.

\therefore Equivalent resistance,

$$R_1 = \frac{(4.5 \times 9)}{(4.5 + 9)} = \frac{40.5}{13.5} = 3 \Omega$$

Total resistance in the circuit (R)

$$= 1.2 + 0.8 + 3 = 5 \Omega$$

(i) Reading of the ammeter

= Current in the circuit (I)

$$= \frac{\text{Total e.m.f. (E)}}{\text{Total resistance (R)}}$$

$$= \frac{2}{5} = 0.4 \text{ ampere}$$

(ii) Potential difference across the terminals of the cell (V)

= Total p.d. in the external circuit

$$= E - Ir$$

$$= 2 - (0.4 \times 1.2)$$

$$= 2 - 0.48 = 1.52 \text{ volts}$$

Answer 9.

(a) (ii) High specific heat capacity ($4200 \text{ J kg}^{-1} \text{ K}^{-1}$) of water makes it an effective coolant.

(b) (i) This is because of high specific latent heat of fusion of ice (equal to 336000 J/kg). So to freeze water, a large quantity of heat has to be taken out from water to freeze it.

(ii) The principle of calorimetry states that heat energy lost by a hot body is equal to the heat energy gained by the cold body, provided no heat is lost to the surrounding.

(iii) It is based on the law of conservation of energy.

(iv) The melting point of ice decreases with the increase in impurities in it.

(c) Heat lost by water when the refrigerator converts 100 g of water at 20°C to water at 0°C

$$= \text{mass of water} \times \text{specific heat capacity of water} \times \text{fall in temperature}$$

$$= 100 \times 4.2 \times (20 - 0) = 8400 \text{ J}$$

Heat energy extracted to convert 100 g of water at 0°C to ice at 0°C

$$= \text{mass of water} \times \text{specific latent heat of fusion of ice} = 100 \times 336 = 33600 \text{ J}$$

Heat energy extracted to convert 100 g of ice at 0°C to ice at -10°C

$$= \text{mass of ice} \times \text{specific heat capacity of ice} \times \text{fall in temperature}$$

$$= 100 \times 2.1 \times [0 - (-10)] = 100 \times 2.1 \times 10 = 2100 \text{ J}$$

$$\text{Total heat extracted} = 8400 + 33600 + 2100$$

$$= 44100 \text{ J}$$

Let the average rate of extraction of heat be P watt.

Energy extracted by the refrigerator in t seconds

$$= P \times t$$

$$\text{Thus, } P \times t = 44100 \text{ J}$$

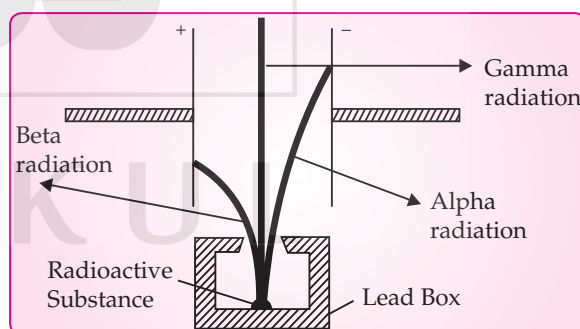
$$\text{or } P \times 35 \times 60 = 44100$$

$$(\because 35 \text{ minute} = 35 \times 60 \text{ second})$$

$$P = \frac{44100}{35 \times 60} = 21 \text{ watt}$$

Answer 10.

(b) (i)



(ii) Two precautions to be taken while handling radioactive substances are :

1. Special lead lined aprons and lead gloves should be used.

2. The radioactive materials should be handled with long lead tongs.

(c) (i) Atomic number of A = Number of protons = 84

Number of neutrons in A = Mass number of A
 – Atomic number of A

Thus, Mass number of A
 = Number of neutrons in A +
 Atomic number of A
 = 128 + 84
 = 212

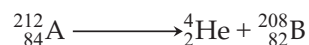
When an alpha particle is emitted,
 Atomic number of B = Atomic number of A – 2
 = 84 – 2 = 82

Thus, Number of protons in B
 = Number of electrons in B
 = Atomic number
 = 82

Mass number of B = 212 – 4
 = 208

Number of neutrons in B
 = Mass number of B –
 Atomic number of B

= 208 – 82
 = 126



- (ii) Atomic number of C is one more than the mass number of B due to beta emission *i.e.*, 82 + 1 = 83, whereas mass number remains the same *i.e.*, 208.



So, Number of electrons in C
 = Number of protons in C
 = Atomic number
 = 83

Number of neutrons
 = Mass number of C
 – Atomic number of C
 = 208 – 83 = 125

- (iii) If C emits gamma radiation, then there is no change in the composition of C.

• •

GURUKUL

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

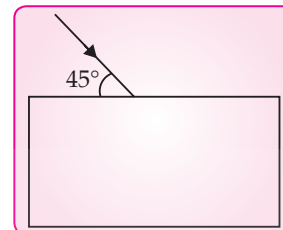
- (a) A force is applied on (i) a non-rigid body and (ii) a rigid body. How does the effect of the force differ in the above two cases? **[2]**
- (b) A metallic ball is hanging by a string from a fixed support. Draw a neat labelled diagram showing the forces acting on the ball and the string. **[2]**
- (c) (i) What is the weight of a body placed at the centre of the earth?
(ii) What is the principle of an ideal machine? **[2]**
- (d) Is it possible to have an accelerated motion with a constant speed? Explain. **[2]**
- (e) (i) When does a force do work?
(ii) What is the work done by the moon when it revolves around the earth? **[2]**

Question 2.

- (a) Calculate the change in the Kinetic energy of a moving body if its velocity is reduced to $1/3^{\text{rd}}$ of the initial velocity. **[2]**
- (b) State the energy changes in the following devices while in use : **[2]**
- (i) A loud speaker
(ii) A glowing electric bulb
- (c) (i) What is nuclear energy?
(ii) Name the process used for producing electricity using nuclear energy. **[2]**
- (d) State one important advantage and disadvantage each of using nuclear energy for producing electricity. **[2]**
- (e) (i) The conversion of part of the energy into an undesirable form is called.....
(ii) For a given height h , the length l of the inclined plane, lesser will be the effort required. **[2]**

Question 3.

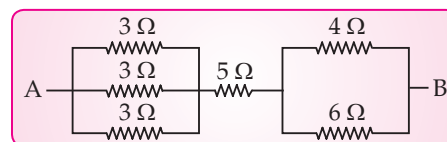
- (a) Draw the diagram given below and clearly show the path taken by the emergent ray : **[2]**



- (b) (i) What is consumed using different electrical appliances, for which electricity bills are paid?
(ii) Name a common device that uses electro-magnets. **[2]**
- (c) (i) A ray of light passes from water to air. How does the speed of light change?
(ii) Which colour of light travels fastest in any medium except air? **[2]**
- (d) Name the factors affecting the critical angle for the pair of media. **[2]**
- (e) (i) Name a prism required for obtaining a spectrum of ultraviolet light.
(ii) Name the radiations which can be detected by a thermopile. **[2]**

Question 4.

- (a) Why is the colour red used as a sign of danger? **[2]**
- (b) (i) What are mechanical waves?
(ii) Name one property of waves that do not change when the wave passes from one medium to another. **[2]**
- (c) Find the equivalent resistance between points A and B. **[2]**



- (d) 50 g of metal piece at 27°C requires 2400 J of heat energy so as to attain a temperature of 327°C . Calculate the specific heat capacity of the metal. **[2]**
- (e) An electrons emitter must havework function andmelting point. **[2]**

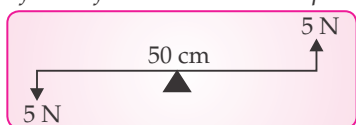
** Answer is not given due to change in the present syllabus.

SECTION-II (40 Marks)

Attempt any **four** questions from this Section

Question 5.

- (a) (i) A man having a box on his head, climbs up a slope and another man having an identical box walks the same distance on a levelled road. Who does more work against the force of gravity and why ?
- (ii) Two forces each of 5 N act vertically upwards and downwards respectively on the two ends of a uniform metre rule which is placed at its mid-point as shown in the diagram. Determine the magnitude of the resultant moment of these forces about the midpoint. [4]



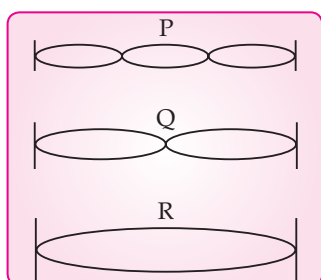
- (b) (i) A body is thrown vertically upwards. Its velocity keeps on decreasing. What happens to its kinetic energy as its velocity becomes zero ?
- (ii) Draw a diagram to show how a single pulley can be used so as to have its ideal M.A. = 2. [3]
- (c) Derive a relationship between mechanical advantage, velocity ratio and efficiency of a machine. [3]

Question 6.

- (a) (i) Light passes through a rectangular glass slab and through a triangular glass prism. In what way does the direction of the two emergent beams differ and why ?
- (ii) Ranbir claims to have obtained an image twice the size of the object with a concave lens. Is he correct ? Give a reason for your answer. [4]
- (b) A lens forms an erect, magnified and virtual image of an object.
- (i) Name the lens.
- (ii) Draw a labelled ray diagram to show the image formation. [3]
- (c) (i) Define the power of a lens.
- (ii) The lens mentioned in 6 (b) above is of focal length 25 cm. Calculate the power of the lens. [3]

Question 7.

- (a) The adjacent diagram shows three different modes of vibrations P, Q and R of the same string.



** Answer is not given due to change in the present syllabus.

- (i) Which vibration will produce a louder sound and why ?
- (ii) The sound of which string will have maximum shrillness ?
- (iii) State the ratio of wavelengths of P and R. [4]
- (b) A type of electromagnetic wave has wavelength 50 Å.
- (i) Name the wave.
- (ii) What is the speed of the wave in vacuum ?
- (iii) State one use of this type of wave. [3]
- (c) (i) State one important property of waves used for echo depth sounding.
- (ii) A radar sends a signal to an aircraft at a distance of 30 km away and receives it back after 2×10^{-4} second. What is the speed of the signal ? [3]

Question 8.

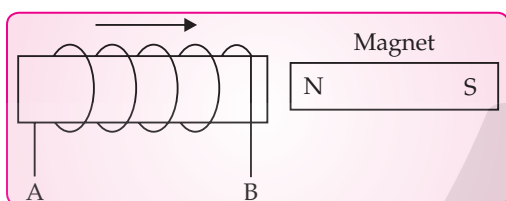
- (a) Two resistors of 4Ω and 6Ω are connected in parallel to a cell to draw 0.5 A current from the cell.
- (i) Draw a labelled circuit diagram showing the above arrangement.
- (ii) Calculate the current in each resistor. [4]
- (b) (i) What is an Ohmic resistor ?
- (ii) Two copper wires are of the same length, but one is thicker than the other.
- (1) Which wire will have more resistance ?
- (2) Which wire will have more specific resistance ? [3]
- (c) (i) Two sets A and B, of three bulbs each, are glowing in two separate rooms. When one of the bulbs in set A is fused, the other two bulbs also cease to glow. But in set B, when one bulb fuses, the other two bulbs continue to glow. Explain why this phenomenon occurs.
- (ii) Why do we prefer arrangements of Set B for house circuiting ? [3]

Question 9.

- (a) Heat energy is supplied at a constant rate to 100 g of ice at 0°C . The ice is converted into water at 0°C in 2 minutes. How much time will be required to raise the temperature of water from 0°C to 20°C ?
- [Given : sp. heat capacity of water $4.2 \text{ g}^{-1}\text{C}^{-1}$, sp. latent heat of ice = 336 J g^{-1}] [4]
- (b) Specific heat capacity of substance A is $3.8 \text{ J g}^{-1} \text{ K}^{-1}$ whereas the specific heat capacity of substance B is $0.4 \text{ J g}^{-1} \text{ K}^{-1}$.
- (i) Which of the two is a good conductor of heat ?
- (ii) How is one led to the above conclusion ?
- (iii) If substances A and B are liquids then which one would be more useful in car radiators ? [3]
- (c) (i) State any two measures to minimize the impact of global warming. **
- (ii) What is the Greenhouse effect ? ** [3]

Question 10.

- (a) (i) Name two factors on which the magnitude of an induced e.m.f. in the secondary coil depends.
 (ii) In the following diagram an arrow shows the motion of the coil towards the bar magnet.
 (1) State in which direction the current flows, A to B or B to A ?
 (2) Name the law used to come to the conclusion.



[4]

- (b) A nucleus ${}_{11}\text{Na}^{24}$ emits a beta particle to change into Magnesium (Mg).

- (i) Write the symbolic equation for the process.
 (ii) What are numbers 24 and 11 called ?
 (iii) What is the general name ${}_{12}^{24}\text{Mg}$ with respect to ${}_{11}^{24}\text{Na}$?

[3]

- (c) In a cathode ray tube state :

- (i) the purpose of covering cathode by thorium and carbon.
 (ii) the purpose of the fluorescent screen.
 (iii) How is it possible to increase the rate of emission of electrons.

[3]

ANSWERS**SECTION-I****Answer 1.**

- (c) (i) The weight of a body placed at the centre of the earth is zero as

$$g = 0$$

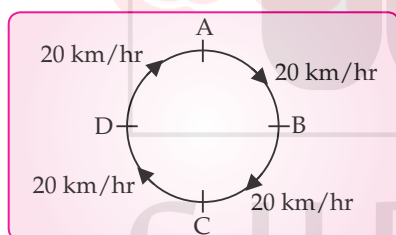
$$\therefore W = mg = 0$$

- (ii) An ideal machine works on the principle that work input = work output and has 100% efficiency as there is no energy loss.

Or

Work done by the machine = Work done on the machine.

- (d) Yes, it is possible to have accelerated motion with constant speed.



For example, in uniform circular motion, the magnitude of speed is constant but direction of motion changes so that acceleration is produced.

- (e) (i) Work is said to be done when the applied force produces displacement in the direction of the force.

$$\text{Work done} = \text{Force} \times \text{Displacement}$$

- (ii) Work done is zero by the moon, as there is no displacement since it is moving in a circular path.

Answer 2.

- (a) Let a body of mass ' m ' kg is moving with velocity ' v ' m/s. The initial kinetic energy is given by

$$\text{K.E}_i = \frac{1}{2} mv^2$$

Now, the velocity is reduced to $\frac{1}{3}$ rd of the initial velocity. The final kinetic energy is given by

$$\text{K.E}_f = \frac{1}{2} m \left(\frac{v}{3} \right)^2$$

$$= \frac{1}{9} \left(\frac{1}{2} mv^2 \right) = \frac{1}{9} \text{K.E}_i$$

So, K.E. becomes $\frac{1}{9}$ th of its initial K.E.

- (b) (i) **Loud speaker** : Electrical energy to sound energy.
 (ii) **Glowing electric bulb** : Electrical energy to heat and light energy.
 (c) (i) Nuclear energy is the energy released by the atom's nucleus during a nuclear reaction.
 (ii) Nuclear fission.

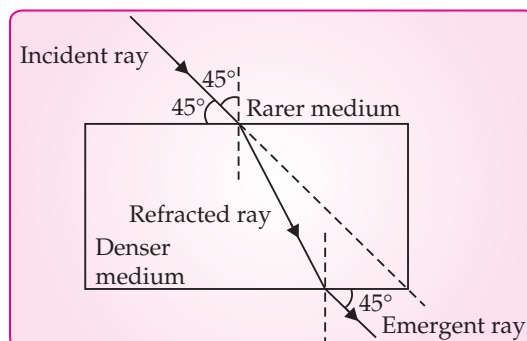
- (d)

| Advantage | Disadvantage |
|--|---|
| Tremendous amount of electrical energy can be produced by using a very small amount of nuclear fuel. | The nuclear waste produced by it is the source of harmful radiations and also causes environmental pollution. |

- (e) (i) Dissipation of energy.

Answer 3.

- (a)



- (b) (i) Electrical energy in kWh which is commercially known as unit.

$$1 \text{ kWh} = 1 \text{ kW} \times 1 \text{ hr}$$

$$= 1 \text{ unit of electricity}$$

- (ii) Electromagnets are used in electric bell, door alarm, electric motor, etc.

- (c) (i) When light passes from water to air *i.e.*, from denser to rarer medium, its speed increases.

- (ii) Red light travels fastest.

- (d) Factors affecting the critical angle :

1. Wavelength of light.
2. Temperature (on changing the temperature of medium, its refractive index changes).

- (e) (i) Quartz prism

- (ii) Infra-red radiations.

Answer 4.

- (a) Red colour is used as a sign of danger due to its longest wavelength and lesser deviation (scattering). Therefore, it can reach to a longer distance.

- (b) (i) Mechanical waves are waves which requires medium for their propagation.

E.g.– sound waves

- (ii) Property of wave that does not change when it passes from one medium to another is frequency.

$$(c) \quad \frac{1}{R_1} = \left(\frac{1}{3} + \frac{1}{3} + \frac{1}{3} \right)$$

$$\Rightarrow \quad \frac{1}{R_1} = 1$$

$$\Rightarrow \quad R_1 = 1 \Omega$$

$$R_2 = 5 \Omega$$

$$\frac{1}{R_3} = \frac{1}{4} + \frac{1}{6} = \frac{10}{24}$$

$$\Rightarrow \quad R_3 = \frac{24}{10} \Omega$$

Now, these resistances are connected in series.

\therefore Equivalent resistance between A and B is

$$R_{eq} = R_1 + R_2 + R_3$$

$$= 1 + 5 + \frac{24}{10}$$

$$R_{eq} = 8.4 \Omega$$

- (d) Given, $m = 50 \text{ g}$ or $\frac{50}{1000} \text{ kg}$

$$Q = 2400 \text{ J}$$

$$T_1 = 27^\circ\text{C}$$

$$T_2 = 327^\circ\text{C}$$

We know,

$$Q = mc\Delta t$$

or

$$c = \frac{Q}{m \Delta t}$$

$$= \frac{2400}{\frac{50}{1000} \times (327 - 27)}$$

$$= \frac{2400}{\frac{5}{100} \times 300}$$

$$(\because \Delta t^\circ\text{C} = \Delta t^\circ\text{K})$$

$$= \frac{2400}{\frac{5}{100} \times 300}$$

$$= \frac{2400}{15} = 160 \text{ Jkg}^{-1} \text{ K}^{-1}$$

SECTION-II

Answer 5.

- (a) (i) Man having a box on his head who climbs up a slope does more work against the force of gravity because he has more potential energy by virtue of his position *i.e.*, height.

$$\text{As, P.E.} = \text{Work done} = F \times S \\ = mg \times h$$

- (ii) The two forces each of 5 N form a couple.

\therefore Moment of the couple

= Either force

\times Perpendicular distance between the two forces

$$= 5 \times 1$$

$$= 5 \text{ Nm (anti-clockwise)}$$

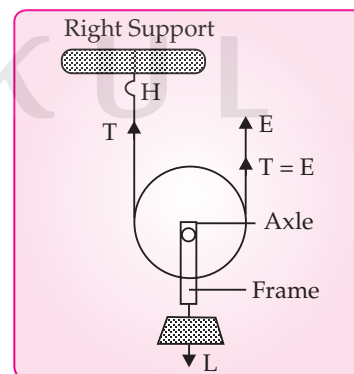
- (b) (i) K.E. completely changes to P.E. (K.E. becomes zero).

$$(ii) \quad \text{Load, } L = T + T = 2T$$

$$\text{And Effort, } E = T$$

$$\text{Now, M.A.} = \frac{\text{Load}}{\text{Effort}}$$

$$\therefore \text{M.A.} = \frac{2T}{T} = 2$$



$$(c) \quad \text{M.A.} = \frac{\text{Load}}{\text{Effort}}$$

$$\text{V.R.} = \frac{\text{Displacement of the effort}}{\text{Displacement of the load}}$$

$$\text{Efficiency, } \eta = \frac{\text{Work output}}{\text{Work input}}$$

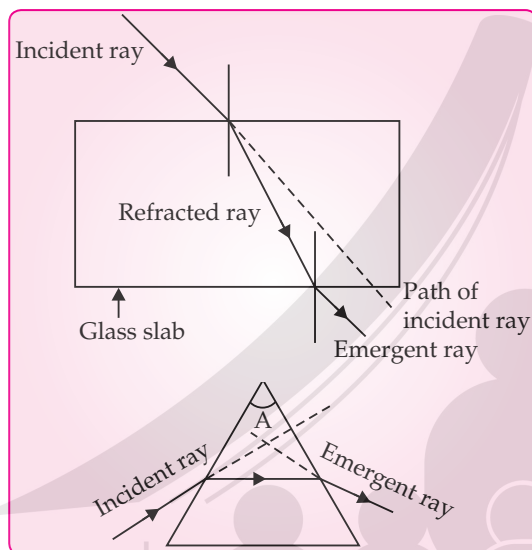
$$\eta = \frac{L \times d_{\text{load}}}{E \times d_{\text{effort}}}$$

$$\eta = \text{M.A.} \times \frac{1}{\text{V.R.}}$$

$$\eta = \frac{\text{M.A.}}{\text{V.R.}}$$

Answer 6.

(a) (i)

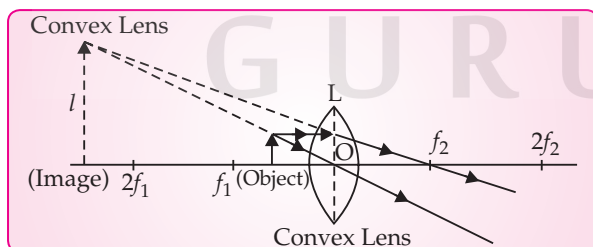


In a glass slab, the emergent ray is laterally displaced because the two refracting surfaces are parallel to each other whereas in case of prism, the emergent ray is deviated because two refracting surfaces are inclined at an angle A .

(ii) No, he is not correct because concave lens always forms virtual, erect and diminished image.

(b) (i) Convex lens.

(ii)



(c) (i) Power of a lens is defined as the measure of deviation produced in the path of light when it passes through the lens.

Or

The power of a lens is defined as the reciprocal of its focal length in metres. The S.I. unit of power is dioptre (D).

Power of lens (in D)

$$= \frac{1}{\text{Focal length (in metre)}}$$

(ii) Given : $f = 25 \text{ cm} = 0.25 \text{ m}$

$$P = \frac{1}{f(\text{in m})}$$

$$P = \frac{1}{0.25} = +4 \text{ D}$$

Answer 7.

(a) (i) Vibration R, as its amplitude is high.

(ii) Sound of string 'P' will have maximum shrillness as its frequency is maximum.

(iii) Let the frequency of the principal note in vibration R be f .

Then, the frequency of vibration P is $3f$.

$$\therefore f_R = f \text{ and } f_P = 3f$$

$$\Rightarrow f_R : f_P = 1 : 3$$

$$\text{But } f \propto \frac{1}{\lambda}$$

$$\text{So, } \frac{\lambda_P}{\lambda_R} = \frac{f_R}{f_P} = \frac{1}{3}$$

$$\therefore \lambda_P : \lambda_R = 1 : 3$$

(b) (i) X-rays.

(ii) Speed of the wave in vacuum is $3 \times 10^8 \text{ m/s}$.

(iii) X-rays are used for determining fracture of bones, hidden objects in customs at airports.

(c) (i) An important property of such type of waves is that they travel undeviated through long distances.

$$(ii) \text{ Speed, } v = \frac{2d}{t}$$

$$\Rightarrow v = \frac{2 \times 30 \times 10^3}{2 \times 10^{-4}}$$

$$\Rightarrow v = \frac{30 \times 10^3}{10^{-4}}$$

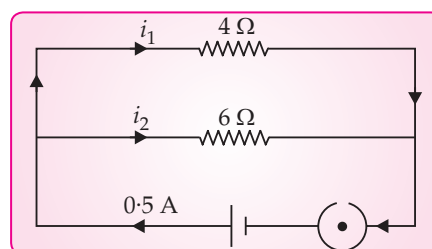
$$\Rightarrow v = 3 \times 10^4 \times 10^4$$

\therefore Speed of the signal,

$$v = 3 \times 10^8 \text{ m/s}$$

Answer 8.

(a) (i)



$$(ii) \quad \frac{1}{R} = \frac{1}{4} + \frac{1}{6}$$

$$R = 2.4 \, \Omega$$

Now,

$$V = IR$$

$$V = 0.5 \times 2.4 = 1.2 \, V$$

$$i_1 = \frac{V}{R_1} = \frac{1.2}{4} = 0.3 \, A$$

$$i_2 = \frac{1.2}{6} = 0.2 \, A$$

$$= \frac{3360}{12} = 280 \, W$$

$$\text{Also, } P \times t' = Q$$

$$t' = \frac{Q}{P}$$

$$= \frac{8400}{280} = 30 \, \text{sec.}$$

(b) (i) An ohmic resistor is a resistor which obeys ohm's law. Examples are all metallic conductors such as silver, aluminium, copper, etc.

(ii) (1) Thinner wire will have more resistance because the resistance is inversely proportional to the area of cross-section.

(2) Specific resistance of both wire is same because specific resistance depends on the nature of the material which is same in both cases.

(c) (i) In set A, bulbs are in series so if one gets fused, others are also affected.

In set B, bulbs are in parallel so if one goes off, others continue to glow.

(ii) For house circuiting, we use the set B arrangement *i.e.*, all the appliances are connected in parallel because in this arrangement, each appliance operates at the same voltage and works independently without being affected whether the other appliance is switched on or off.

(b) Specific heat capacity of A is $3.8 \, \text{Jg}^{-1} \text{K}^{-1}$.

Specific heat capacity of B is $0.4 \, \text{Jg}^{-1} \text{K}^{-1}$.

(i) 'B' is a good conductor of heat.

(ii) The specific heat capacity of B is lower than A. This means that less heat is required to raise the temperature of 1 g of B by 1 K than the heat required for A.

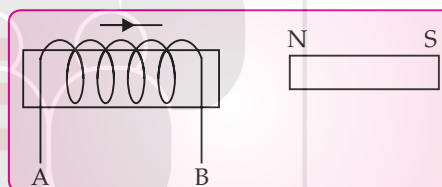
(iii) 'A' will be preferred as it absorbs large amount of heat energy without raising its own temperature much as its specific heat capacity is high.

Answer 10.

(a) (i) Magnitude of induced e.m.f. depends on
1. the magnitude of e.m.f. applied in the primary coil.

2. the number of turns in the coil.

(ii) 1.



Current flows from A to B as the coil moves towards the magnet and induced e.m.f. always opposes the motion.

2. Lenz's law

(b) (i) ${}_{11}\text{Na}^{24} \longrightarrow {}_{12}\text{Mg}^{24} + {}_{-1}e^0 + \text{energy}$

(ii) 24 is the mass number (number of protons and neutrons).

11 is the atomic number (number of protons).

(iii) Isobars.

Answer 9.

(a) Given,

Mass of ice, $m = 100 \, \text{g} = 0.1 \, \text{kg}$

Heat energy required to raise the temperature of water from 0°C to 20°C ,

$$\begin{aligned} Q &= mc\Delta t \\ &= 0.1 \, \text{kg} \times 4200 \, \text{Jkg}^{-1}\text{C}^{-1} \times 20^\circ\text{C} \\ &= 420 \times 20 = 8400 \, \text{J} \end{aligned}$$

Heat energy required for conversion of ice into water at $0^\circ\text{C} = mL$

$$\begin{aligned} &= 0.1 \, \text{kg} \times 336000 \, \text{J/kg} \\ &= 33600 \, \text{J} \end{aligned}$$

Now, Power, $P = \frac{W}{t}$

$$P = \frac{33600}{120}$$

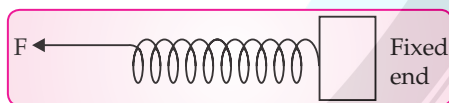
QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

Question 1.

- (a) Give any two effects of a force on a non-rigid body. **[2]**
- (b) One end of a spring is kept fixed while the other end is stretched by a force as shown in the diagram. ******

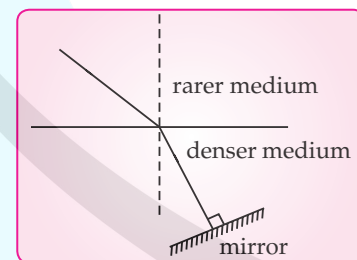


- (i) Copy the diagram and mark on it the direction of the restoring force.
- (ii) Name one instrument which works on the above principle. **[2]**
- (c) (i) Where is the centre of gravity of a uniform ring situated ?
- (ii) 'The position of the centre of gravity of a body remains unchanged even when the body is deformed.' State whether the statement is true or false. **[2]**
- (d) A force is applied on a body of mass 20 kg moving with a velocity of 40 ms^{-1} . The body attains a velocity of 50 ms^{-1} in 2 second. Calculate the work done by the body. **[2]**
- (e) A type of single pulley is very often used as a machine even though it does not give any gain in mechanical advantage.
- (i) Name the type of pulley used.
- (ii) For what purpose is such a pulley used ? **[2]**

Question 2.

- (a) (i) In what way does an 'Ideal machine' differ from a 'Practical machine' ?
- (ii) Can a simple machine act as a force multiplier and a speed multiplier at the same time ? **[2]**
- (b) A girl of mass 35 kg climbs up from the first floor of a building at a height 4 m above the ground to the third floor at a height 12 m above the ground. What will be the increase in her gravitational potential energy ? [$g = 10 \text{ ms}^{-2}$] **[2]**

- (c) Which class of lever found in the human body is being used by a boy :
- (i) when he holds a load on the palm of his hand.
- (ii) when he raises the weight of his body on his toes ? **[2]**
- (d) A ray of light is moving from a rarer medium to a denser medium and strikes a plane mirror placed at 90° to the direction of the ray as shown in the diagram.



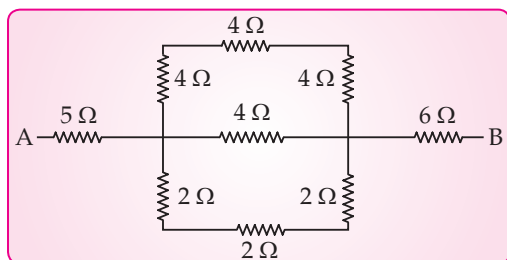
- (i) Copy the diagram and mark arrows to show the path of the ray of light after it is reflected from the mirror.
- (ii) Name the principle you have used to mark the arrows to show the direction of the ray. **[2]**
- (e) (i) The refractive index of glass with respect to air is 1.5. What is the value of the refractive index of air with respect to glass ?
- (ii) A ray of light is incident as a normal ray on the surface of separation of two different mediums. What is the value of the angle of incidence in this case ? **[2]**

Question 3.

- (a) A bucket kept under a running tap is getting filled with water. A person sitting at a distance is able to get an idea when the bucket is about to be filled.
- (i) What change takes place in the sound to give this idea ?
- (ii) What causes the change in the sound ? **[2]**
- (b) A sound made on the surface of a lake takes 3 s to reach a boatman.
- How much time will it take to reach a diver inside the water at the same depth ?
- Velocity of sound in air = 330 ms^{-1}
- Velocity of sound in water = 1450 ms^{-1} **[2]**

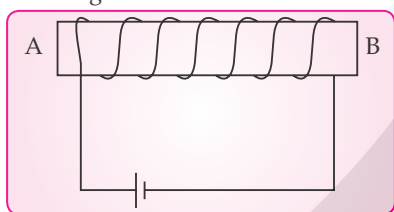
****** Answer is not given due to change in the present syllabus.

- (c) Calculate the equivalent resistance between the points A and B for the following combination of resistors : [2]



- (d) You have been provided with a solenoid AB.

- (i) What is the polarity at end A ?
(ii) Give one advantage of an electromagnet over a permanent magnet. [2]

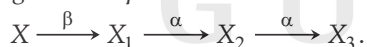


- (e) (i) Name the device used to protect the electric circuits from overloading and short circuits.
(ii) On what effect of electricity does the above device work ? [2]

Question 4.

- (a) Define the term 'Heat capacity' and state its S.I. unit. [2]
(b) What is meant by Global Warming ? ** [2]
(c) How much heat energy is released when 5 g of water at 20°C changes to ice at 0°C ?
[Specific heat capacity of water = $4.2 \text{ J g}^{-1} \text{ } ^\circ\text{C}^{-1}$
Specific latent heat of fusion of ice = 336 J g^{-1}] [2]
(d) Which of the radioactive radiations :
(i) can cause severe genetical disorders.
(ii) are deflected by an electric field ? [2]

- (e) A radioactive nucleus undergoes a series of decays according to the sequence



If the mass number and atomic number of X_3 are 172 and 69 respectively, what is the mass number and atomic number of X ? [2]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section

Question 5.

- (a) (i) With reference to their direction of action, how does a centripetal force differ from a centrifugal force ?
(ii) State the principle of conservation of energy.

** Answer is not given due to change in the present syllabus.

- (iii) Name the form of energy which a body may possess even when it is not in motion. [3]

- (b) A coolie is pushing a box weighing 1500 N up an inclined plane 7.5 m long on to a platform, 2.5 m above the ground. **

- (i) Calculate the mechanical advantage of the inclined plane.
(ii) Calculate the effort applied by the coolie.
(iii) In actual practice, the coolie needs to apply more effort than what is calculated. Give one reason why you think the coolie needs to apply more effort. [3]

- (c) A block and tackle system of pulleys has a velocity ratio 4.

- (i) Draw a labelled diagram of the system indicating clearly the points of application and directions of load and effort.
(ii) What is the value of the mechanical advantage of the given pulley system if it is an ideal pulley system ? [4]

Question 6.

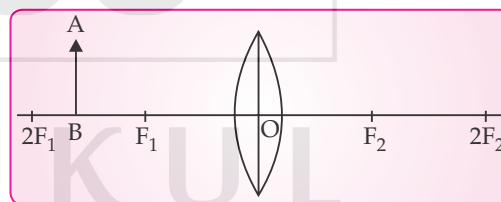
- (a) Name the radiations :

- (i) that are used for photography at night.
(ii) used for detection of fracture in bones.
(iii) whose wavelength range is from 100 \AA to 4000 \AA (or 10 nm to 400 nm). [3]

- (b) (i) Can the absolute refractive index of a medium be less than one ?

- (ii) A coin placed at the bottom of a beaker appears to be raised by 4.0 cm. If the refractive index of water is $4/3$, find the depth of the water in the beaker. [3]

- (c) An object AB is placed between $2F_1$ and F_1 on the principal axis of a convex lens as shown in the diagram :



Copy the diagram and using three rays starting from point A, obtain the image of the object formed by the lens. [4]

Question 7.

- (a) (i) What is the principle on which SONAR is based ?

- (ii) An observer stands at a certain distance away from a cliff and produces a loud sound. He hears the echo of the sound after 1.8 s. Calculate the distance between the cliff and the observer if the velocity of sound in air is 340 ms^{-1} . [3]

- (b) A vibrating tuning fork is placed over the mouth of a burette filled with water. The tap of the burette is opened and the water level gradually starts falling. It is found that the sound from the tuning fork becomes very loud for a particular length of the water column.

(i) Name the phenomenon taking place when this happens.

(ii) Why does the sound become very loud for this length of the water column? [3]

- (c) (i) What is meant by the terms (1) amplitude (2) frequency, of a wave?

(ii) Explain why stringed musical instruments, like the guitar, are provided with a hollow box. [4]

Question 8.

- (a) (i) It is observed that the temperature of the surroundings starts falling when the ice in a frozen lake starts melting. Give a reason for the observation.

(ii) How is the heat capacity of the body related to its specific heat capacity? [3]

- (b) (i) Why does a bottle of soft drink cool faster when surrounded by ice cubes than by ice cold water, both at 0°C ?

(ii) A certain amount of heat Q will warm 1 g of material X by 3°C and 1 g of material Y by 4°C . Which material has a higher specific heat capacity? [3]

- (c) A calorimeter of mass 50 g and specific heat capacity $0.42 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$ contains some mass of water at 20°C . A metal piece of mass 20 g at 100°C is dropped into the calorimeter. After stirring, the final temperature of the mixture is found to be 22°C . Find the mass of water used in the calorimeter.

[specific heat capacity of the metal piece = $0.3 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$
specific heat capacity of water = $4.2 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$] [4]

Question 9.

- (a) (i) State Ohm's law.

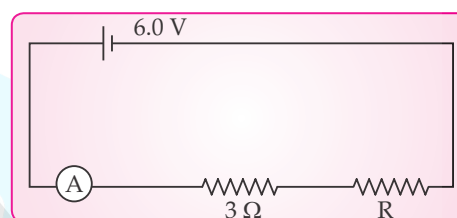
(ii) A metal wire of resistance 6Ω is stretched so that its length is increased to twice its original length. Calculate its new resistance. [3]

- (b) (i) An electrical gadget can give an electric shock to its user under certain circumstances. Mention any two of these circumstances.

(ii) What preventive measure provided in a gadget can protect a person from an electric shock? [3]

- (c) The figure shows a circuit.

When the circuit is switched on, the ammeter reads 0.5 A .



(i) Calculate the value of the unknown resistor R .

(ii) Calculate the charge passing through the 3Ω resistor in 120 s.

(iii) Calculate the power dissipated in the 3Ω resistor. [4]

Question 10.

- (a) Name the three main parts of a Cathode Ray Tube. ** [3]

(b) (i) What is meant by Radioactivity?

(ii) What is meant by nuclear waste?

(iii) Suggest one effective way for the safe disposal of nuclear waste. [3]

(c) (i) Draw a simple labelled diagram of a d.c. electric motor.

(ii) What is the function of the split rings in a d.c. motor?

(iii) State one advantage of a.c. over d.c. [4]

ANSWERS

SECTION-I

Answer 1.

- (c) (i) Centre of gravity of a uniform ring is at its geometric centre.

(ii) False.

- (d) Work done, $W = \frac{1}{2} m (v_2^2 - v_1^2)$
 $= \frac{1}{2} \times 20 (50^2 - 40^2)$
 $= 9000 \text{ J}$

- (e) (i) Single fixed pulley.

(ii) Single fixed pulley is used to change the direction of effort applied.

Answer 2.

- (a) (i) Ideal machine has 100% efficiency i.e., work done on the machine is equal to the work done by the machine while a practical machine is not 100% efficient due to the energy loss in friction etc.

(ii) No, it will either be acting as a speed multiplier or a force multiplier.

- (b) Increase in gravitational potential energy

$$= mg (h_2 - h_1)$$

$$= 35 \times 10 (12 - 4)$$

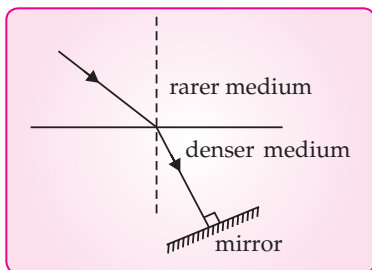
$$= 350 \times 8 = 2800 \text{ J}$$

** Answer is not given due to change in the present syllabus.

(c) (i) Class III lever.

(ii) Class II lever.

(d) (i)



(ii) Principle of reversibility of light.

(e) (i)

$${}_a\mu_g = 1.5$$

$${}_g\mu_a = \frac{1}{{}_a\mu_g}$$

$$= \frac{1}{1.5} = 0.666 = 0.67$$

(ii)

$$\angle i = 0^\circ$$

Answer 3.

(a) (i) As the bucket is filled, the sound becomes shriller due to decrease in length of air column and increase in frequency.

(ii) The change in sound takes place due to change in frequency of sound due to decrease in the length of the air column.

(b) Given, depth *i.e.*, distance is same in both the cases.

Now, $s = \frac{d}{t}$

$$\Rightarrow 330 = \frac{d}{3}$$

$$\Rightarrow d = 990 \text{ m}$$

Now for the diver inside water

$$s' = \frac{d}{t'}$$

or $t' = \frac{d}{s'} = \frac{990}{1450}$

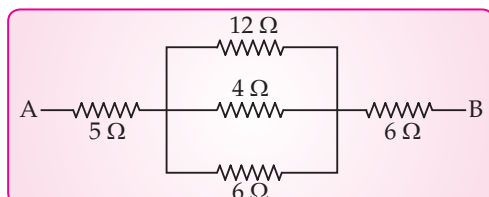
$$\therefore t' = 0.682 \text{ sec.}$$

(c) In the given circuit, 4Ω , 4Ω and 4Ω in series gives $R_1 = 4 + 4 + 4 = 12 \Omega$

and 2Ω , 2Ω and 2Ω in series gives

$$R_2 = 2 + 2 + 2 = 6 \Omega.$$

Now, $R_1 = 12 \Omega$, $R_2 = 6 \Omega$ and $R_3 = 4 \Omega$ are in parallel.



The equivalent resistance R' is given by

$$\frac{1}{R'} = \frac{1}{12} + \frac{1}{4} + \frac{1}{6}$$

$$= \frac{1+3+2}{12} = \frac{6}{12}$$

$$\frac{1}{R'} = \frac{1}{2}$$

$$R' = 2 \Omega$$



$$\text{Total resistance} = 5 + 2 + 6 = 13 \Omega.$$

(d) (i) North pole.

(ii) The strength of the magnetic field of an electromagnet can be changed according to its use and it will be a magnet till the time current passes through it whereas, the strength of permanent magnet can not be increased and can not be magnetized and demagnetized in an instance.

(e) (i) Fuse.

(ii) Heating effect of electric current.

Answer 4.

(a) **Heat capacity** : Heat capacity of the body is the amount of heat energy required to raise its temperature by 1°C or 1 K .

The S.I. unit of heat capacity is joule per kelvin (JK^{-1}).

(c) Heat energy required

$$= mc\Delta t + mL$$

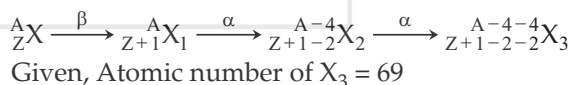
$$= 5 \times 4.2 \times (20 - 0) + 5 \times 336$$

$$= 420 + 1680 = 2100 \text{ J}$$

(d) (i) γ -radiations.

(ii) α and β radiations are deflected by an electric field.

(e)



Given, Atomic number of $X_3 = 69$

Mass number of $X_3 = 172$

$$\therefore A - 8 = 172 \Rightarrow A = 180$$

$$\text{And } Z - 3 = 69 \Rightarrow Z = 72$$

SECTION-II

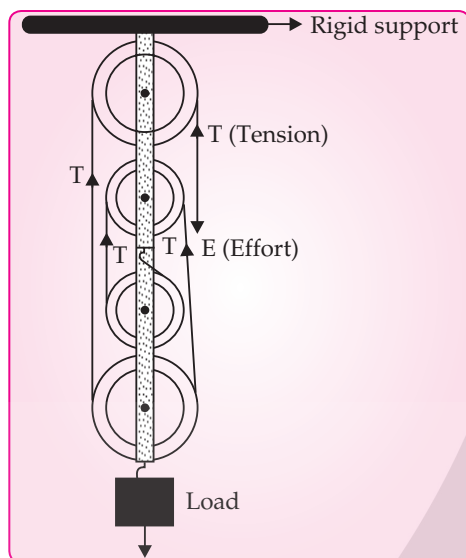
Answer 5.

(a) (i) Direction of centripetal force is towards the centre of the circle whereas centrifugal force is directed radially outwards.

(ii) **Principle of conservation of energy** : It states that energy can neither be created nor be destroyed but can be transformed from one form to another form. The total sum of energy in the universe always remains the same.

(iii) Potential energy.

(c) (i)



(ii) M.A. = V.R. = 4, for an ideal pulley system.

Answer 6.

(a) (i) Infrared radiations.

(ii) X-rays.

(iii) UV radiations.

(b) (i) No, the absolute refractive index of a medium cannot be less than one because speed of light in any medium is always less than that of in vacuum.

(ii) Let Real depth = x
Refractive Index,

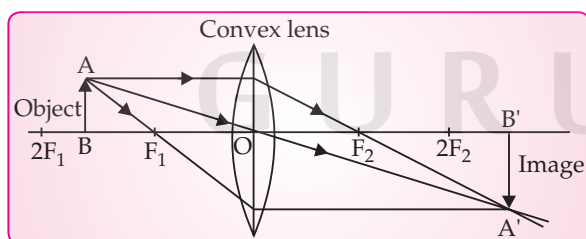
$$\mu = \frac{\text{Real depth}}{\text{Apparent depth}}$$

$$\Rightarrow \frac{4}{3} = \frac{x}{x-4}$$

$$\Rightarrow 4x - 16 = 3x$$

$$\therefore x = 16 \text{ cm.}$$

(c)

**Answer 7.**

(a) (i) SONAR is based on the principle of reflection of sound i.e., echo.

(ii) Here, $s = \frac{2d}{t}$

$$\Rightarrow 2d = s \times t$$

$$\Rightarrow d = \frac{340 \times 1.8}{2}$$

$$\therefore d = 306 \text{ m.}$$

(b) (i) Resonance.

(ii) The frequency of the tuning fork and the natural frequency of the vibrating air column become equal. The air column vibrates with larger amplitude thus producing a loud sound.

(c) (i) **1. Amplitude** : Maximum displacement of the vibrating particle on either side of the mean position is called amplitude.**2. Frequency** : Number of oscillations completed by the wave in one second is called frequency.

(ii) When the strings vibrate, the air column inside the box is set into forced vibrations. Since the sound box has a large area, it sets a large volume of air into vibration of the same frequency as that of the string, thereby producing resonance.

Answer 8.

(a) (i) Temperature of the surroundings starts falling when the ice starts melting because every 1 gm of ice requires 336 J to convert it into water at 0°C so it extracts a great amount of heat from the atmosphere.

(ii) Heat capacity = $\frac{\Delta\theta}{\Delta T} = \frac{mc\Delta T}{\Delta T} = mc$

i.e., Heat capacity = mass \times specific heat

capacity

(b) (i) Bottles of soft drink cools faster when surrounded by ice cubes because every 1 g of ice on melting requires 336 J. So, it extracts a large amount of heat from the bottle hence, they cool faster.

(ii) Specific heat capacity,

$$c = \frac{\text{Heat taken}}{\text{Mass} \times \text{Rise in temperature}}$$

$$\therefore c_X = \frac{Q}{1 \times 3} \text{ and } c_Y = \frac{Q}{1 \times 4}$$

$$\therefore c_X > c_Y$$

Hence, X has higher specific heat capacity.

(c)

Heat given = Heat taken

let mass of water used be m , then

$$mc\Delta T = m'c'\Delta t + m_1c_1\Delta t$$

$$\Rightarrow 20 \times 0.3 \times (100 - 22)$$

$$= 50 \times 0.42 \times (22 - 20)$$

$$+ m \times 4.2 \times (22 - 20)$$

$$\Rightarrow 468 = 42 + 8.4 m$$

$$\Rightarrow 8.4 m = 426$$

$$\therefore m = 50.71 \text{ g.}$$

Answer 9.

- (a) (i) **Ohm's law** : It states that the current flowing in a conductor is directly proportional to the potential difference across its ends provided the physical conditions and the temperature of the conductor remains constant *i.e.*, $V \propto I$ or $V = IR$ where R is a constant called resistance of conductor.

$$\begin{aligned} \text{(ii)} \quad R' &= n^2 R \\ &= 2^2 \times 6 = 24 \, \Omega. \end{aligned}$$

- (b) (i) 1. When the live wire comes in contact with the wet hand of the user.
2. Due to short circuit in the electrical gadget.
(ii) Earthing can protect a person from electric shock.

(c) (i) We know, $V = IR'$
 $\Rightarrow 6 = 0.5 \times R'$
 $\Rightarrow R' = 12 \, \Omega$
 $\therefore R' = 3 + R$
 $\Rightarrow 12 = 3 + R$
 $\therefore R = 9 \, \Omega$

(ii) Charge, $q = It$
 $\Rightarrow q = 0.5 \times 120 = 60 \text{ coulomb}$
 (iii) Power dissipation,
 $P = I^2 R$
 $P = 0.5^2 \times 3 = 0.75 \text{ W}.$

Answer 10.

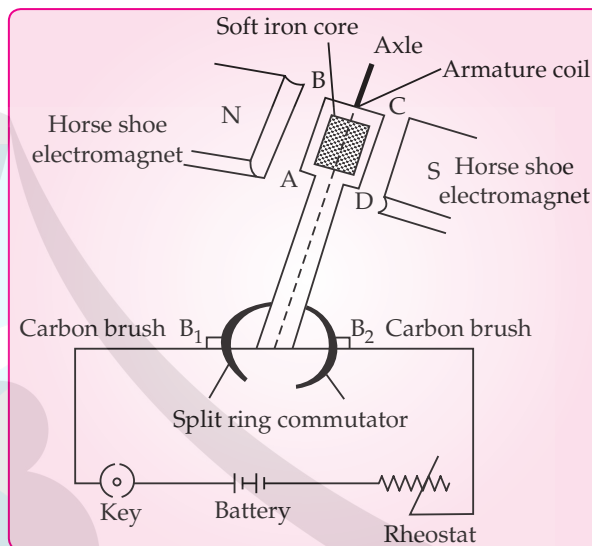
- (b) (i) **Radioactivity** : The process of spontaneous emission of α , β and γ radiations from the

nuclei of atoms during their decay is known as radioactivity.

(ii) After disintegration, the radioactive material finally converts into lead and still it holds some radioactivity. This is called nuclear waste.

(iii) Delay and decay method is the effective way for the safe disposal of nuclear waste.

- (c) (i)



(ii) The split ring acts as a commutator in a d.c. motor. With the split ring, the direction of current through the coil is reversed after every half rotation of coil and thus the direction of couple rotating the coil remains unchanged and the coil continues to rotate in the same direction.

(iii) Advantage of a.c. over d.c. is that it is able to travel long distance without much power loss.



GURUKUL

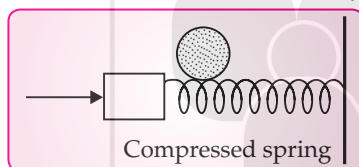
QUESTIONS

SECTION-I (40 Marks)

Attempt *all* questions from this Section

Question 1.

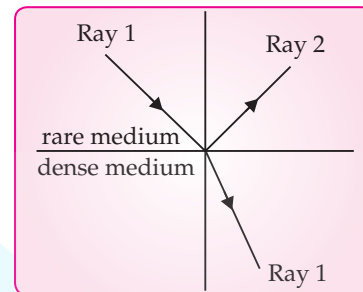
- (a) (i) Define 1 kgf.**
(ii) How is it related to the S.I. unit of force? ** [2]
- (b) (i) What are non-contact forces? **
(ii) How does the distance of separation between two bodies affect the magnitude of the non-contact force between them? ** [2]
- (c) A boy of mass 30 kg is sitting at a distance of 2 m from the middle of a see-saw. Where should a boy of mass 40 kg sit so as to balance the see-saw? [2]
- (d) (i) What is meant by the term 'moment of force'?
(ii) If the moment of force is assigned a negative sign then will the turning tendency of the force be clockwise or anti-clockwise? [2]
- (e) A ball is placed on a compressed spring. When the spring is released, the ball is observed to fly away.



- (i) What form of energy does the compressed spring possess?
(ii) Why does the ball fly away? [2]

Question 2.

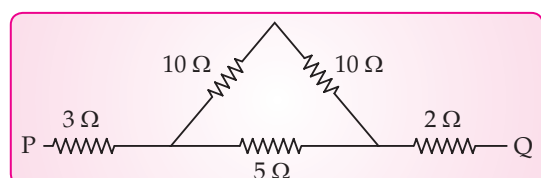
- (a) (i) State the energy conversion taking place in a solar cell.**
(ii) Give one disadvantages of using a solar cell.** [2]
- (b) A body of mass 0.2 kg falls from a height of 10 m to a height of 6 m above the ground. Find the loss in potential energy taking place in the body.
[$g = 10 \text{ ms}^{-2}$] [2]
- (c) (i) Define the term refractive index of a medium in terms of velocity of light.
(ii) A ray of light moves from a rare medium to a dense medium as shown in the diagram below. Write down the number of the ray which represents the partially reflected ray. [2]



- (d) You are provided with a printed piece of paper. Using this paper how will you differentiate between a convex lens and a concave lens? [2]
- (e) A ray of light incident at an angle of incidence 'i' passes through an equilateral glass prism such that the refracted ray inside the prism is parallel to its base and emerges from the prism at an angle of emergence 'e'.
(i) How is the angle of emergence 'e' related to the angle of incidence 'i'?
(ii) What can you say about the value of the angle of deviation in such a situation? [2]

Question 3.

- (a) (i) What is meant by 'Dispersion of light'?
(ii) In the atmosphere which colour of light gets scattered the least? [2]
- (b) Which characteristics of sound will change if there is a change in
(i) its amplitude (ii) its waveform. [2]
- (c) (i) Name one factor which affects the frequency of sound emitted due to vibrations in an air column.
(ii) Name the unit used for measuring the sound level. [2]
- (d) An electrical appliance is rated at 1000 KVA, 220 V. If the appliance is operated for 2 hours, calculate the energy consumed by the appliance in :
(i) kWh (ii) joule [2]
- (e) Calculate the equivalent resistance between P and Q from the following diagram : [2]



** Answer is not given due to change in the present syllabus.

Question 4.

- (a) (i) What is an a.c. generator or Dynamo used for ?
 (ii) Name the principle on which it works. [2]
- (b) Differentiate between heat capacity and specific heat capacity. [2]
- (c) A hot solid of mass 60 g at 100°C is placed in 150 g of water at 20°C . The final steady temperature recorded is 25°C . Calculate the specific heat capacity of the solid. [Specific heat capacity of water = $4200 \text{ J kg}^{-1} \text{ }^{\circ}\text{C}^{-1}$] [2]
- (d) (i) What is the value of the speed of gamma radiations in air or vacuum ?
 (ii) Name a material which exhibits fluorescence when cathode rays fall on it. [2]
- (e) Give any two important sources of background radiation. [2]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section

Question 5.

- (a) (i) Which of the following remains constant in uniform circular motion. Speed or Velocity or both ?
 (ii) Name the force required for uniform circular motion. State its direction. [3]
- (b) (i) State the class of levers and the relative positions of load (L), effort (E) and fulcrum (F) in each of the following cases.
 (1) A bottle opener (2) Sugar tongs.
 (ii) Why is less effort needed to lift a load over an inclined plane as compared to lifting the load directly ? ** [3]
- (c) (i) A moving body weighing 400 N possesses 500 J of kinetic energy. Calculate the velocity with which the body is moving. ($g = 10 \text{ ms}^{-2}$)
 (ii) Under what condition will a set of gears produce : **
 (1) a gain in speed
 (2) a gain in torque. [4]

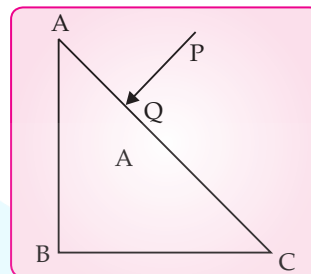
Question 6.

- (a) (i) What is meant by the term 'critical angle' ?
 (ii) How is it related to the refractive index of the medium ?
 (iii) Does the depth of a tank of water appear to change or remain the same when viewed normally from above ? [3]

- (b) A ray of light PQ is incident normally on the hypotenuse of a right angled prism ABC as shown in the diagram given below :

- (i) Copy the diagram and complete the path of the ray PQ till it emerges from the prism.

- (ii) What is the value of the angle of deviation of the ray ?



- (iii) Name an instrument where this action of the prism is used. [3]

- (c) A converging lens is used to obtain an image of an object placed in front of it. The inverted image is formed between F_2 and $2F_2$ of the lens.

- (i) Where is the object placed ?

- (ii) Draw a ray diagram to illustrate the formation of the image obtained. [4]

Question 7.

- (a) (i) What is meant by Resonance ?

- (ii) State two ways in which Resonance differs from Forced vibrations. [3]

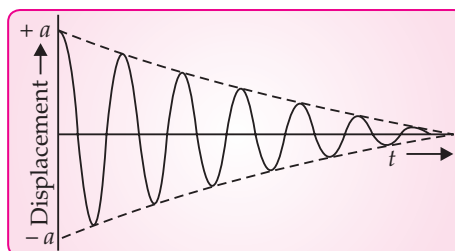
- (b) (i) A man standing between two cliffs produces a sound and hears two successive echoes at intervals of 3 s and 4 s respectively. Calculate the distance between the two cliffs.

The speed of sound in the air is 330 ms^{-1} .

- (ii) Why will an echo not be heard when the distance between the source of sound and the reflecting surface is 10 m ? [3]

- (c) The diagram below shows the displacement-time graph for a vibrating body.

- (i) Name the type of vibrations produced by the vibrating body.



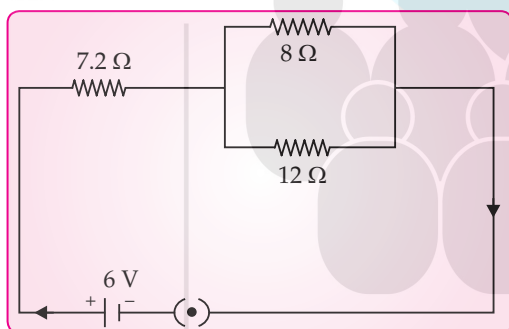
** Answer is not given due to change in the present syllabus.

- (ii) Give one example of a body producing such vibrations.
- (iii) Why is the amplitude of the wave gradually decreasing?
- (iv) What will happen to the vibrations of the body after some time?

[4]

Question 8.

- (a) (i) A cell is sending current in an external circuit. How does the terminal voltage compare with the e.m.f. of the cell?
- (ii) What is the purpose of using a fuse in an electrical circuit?
- (iii) What are the characteristic properties of fuse wire?
- (b) (i) Write an expression for the electrical energy spent in the flow of current through an electrical appliances in terms of I , R and t .
- (ii) At what voltage is the alternating current supplied to our houses?
- (iii) How should the electric lamps in a building be connected?
- (c) Three resistors are connected to a 6 V battery as shown in the figure given below:



Calculate:

- (i) the equivalent resistance of the circuit.
- (ii) total current in the circuit.
- (iii) potential difference across the $7.2\ \Omega$ resistor.

[4]

Question 9.**

- (a) (i) Write an expression for the heat energy liberated by a hot body.
- (ii) Some heat is provided to a body to raise its temperature by 25°C . What will be the corresponding rise in temperature of the body as shown on the Kelvin scale?
- (iii) What happens to the average kinetic energy of the molecules as ice melts at 0°C ?

[3]

** Answer is not given due to change in the present syllabus.

- (b) A piece of ice at 0°C is heated at a constant rate and its temperature recorded at regular intervals till steam is formed at 100°C . Draw a temperature-time graph to represent the change in phase. Label the different parts of your graph.
- (c) 40 g of ice at 0°C is used to bring down the temperature of a certain mass of water at 60°C to 10°C . Find the mass of water used.

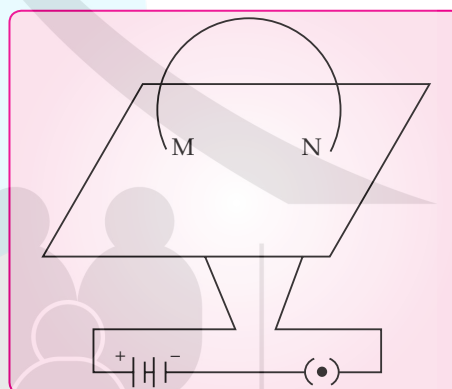
[3]

[Specific heat capacity of water = $4200\ \text{J kg}^{-1}\ ^\circ\text{C}^{-1}$][Specific latent heat of fusion of ice = $336 \times 10^3\ \text{J kg}^{-1}$]

[4]

Question 10.

- (a) The diagram below shows a current carrying loop or a circular coil passing through a sheet of cardboard at the points M and N. The sheet of cardboard is sprinkled uniformly with iron filings.



- (i) Copy the diagram and draw an arrow on the circular coil to show the direction of current flowing through it.
- (ii) Draw the pattern of arrangement of the iron filings when current is passed through the loop.
- (b) (i) Draw a simplified labelled diagram of a hot cathode ray tube.**
- (ii) Name a common device where a hot cathode ray tube is used.**
- (c) A certain nucleus X has a mass number 14 and atomic number 6. The nucleus X changes to ${}^7\text{Y}^{14}$ after the loss of a particle.
- (i) Name the particle emitted.
- (ii) Represent this change in the form of an equation.
- (iii) A radioactive substance is oxidized. What change would you expect to take place in the nature of its radioactivity? Give a reason for your answer.

[3]

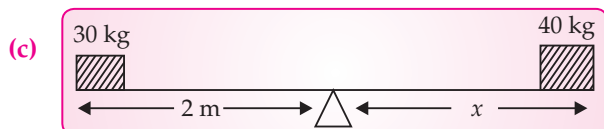
[3]

[4]

ANSWERS

SECTION-I

Answer 1.



By principle of moments,

$$30 \times 2 = x \times 40$$

$$\text{or } x = \frac{30 \times 2}{40} = 1.5 \text{ m}$$

So, the other boy should sit at a distance of 1.5 m from the mean position.

(d) (i) **Moment of force** : It is equal to the product of the magnitude of the force and the perpendicular distance of the line of action of force from the axis of rotation.

(ii) If moment of force is assigned a negative value, it means turning tendency of force is in clockwise direction.

(e) (i) The Compressed spring possess potential energy.

(ii) Potential energy of the spring is imparted to the ball in the form of kinetic energy.

Answer 2.

(b) Given, Mass = 0.2 kg
Height, $h = 10 \text{ m to } 6 \text{ m}$

$$\begin{aligned} \text{Loss in Potential Energy} &= mg(h_1 - h_2) \\ &= 0.2 \times 10 \times (10 - 6) = 8 \text{ J} \end{aligned}$$

(c) (i) **Refractive Index** : It is defined as the ratio of velocity of light in medium 1 to the velocity of light in medium 2.

(ii) Ray 2 shows partially reflected ray.

(d) First we place the lens on a piece of printed paper. Then we lift it slowly. If the words of the printed paper, seen through the lens becomes bigger or magnified then it is convex lens otherwise concave lens.

(e) (i) Angle of emergence $\angle e$
= Angle of incidence $\angle i$

(ii) Angle of deviation becomes minimum in this situation.

Answer 3.

(a) (i) **Dispersion of light** : When a beam of white light falls on a prism, it splits into the rays of constituent colours. This is known as dispersion of light.

(ii) In atmosphere, red colour scatters the least because of its long wavelength.

(b) (i) If there is a change in amplitude of sound then its loudness will change.

(ii) If there is a change in waveform of sound then its quality will change.

(c) (i) Length of the air column.

(ii) Decibel.

(d) Given : $V = 220 \text{ volt}$, $P = 1000 \text{ kVA}$,

Time = 2 hrs

$$\begin{aligned} \text{(i) Energy consumed} &= Pt \\ &= 2000 \text{ kWh} \end{aligned}$$

$$\begin{aligned} \text{(ii) We know, } 1 \text{ kWh} &= 3.6 \times 10^6 \text{ J} \\ \text{So, } 2000 \text{ kWh} &= 2000 \times 3.6 \times 10^6 \text{ J} \\ &= 7.2 \times 10^9 \text{ J} \end{aligned}$$

(e) In the given circuit, two 10Ω resistances are in series.

$$\therefore R_s = 10 \Omega + 10 \Omega = 20 \Omega.$$

Now, 20Ω and 5Ω resistances are in parallel.

$$\begin{aligned} \therefore \frac{1}{R_p} &= \frac{1}{20} + \frac{1}{5} \\ \frac{1}{R_p} &= \frac{1+4}{20} = \frac{5}{20} \\ R_p &= 4 \Omega \end{aligned}$$

The equivalent resistance between P and Q is given by

$$R = 3 + 4 + 2 = 9 \Omega$$

Answer 4.

(a) (i) An a.c. generator is used for producing alternating current.

(ii) It works on the principle of electromagnetic induction.

(b) Refer to Gurukul Solved Paper Physics 2018, Answer 9(b)(i).

(c) Given :

Mass of hot solid, $m_1 = 60 \text{ g}$ at 100°C

Mass of water, $m_2 = 150 \text{ g}$ at 20°C

Final temperature = 25°C

By principle of calorimetry,

$$\text{Heat given} = \text{Heat taken}$$

$$\Rightarrow m_1 c_1 \Delta t_1 = m_2 c_2 \Delta t_2$$

$$\Rightarrow 60 \times c \times (100 - 25) = 150 \times 4.2 \times (25 - 20)$$

\therefore Required specific heat capacity,

$$c = 0.7 \text{ J g}^{-1} \text{ } ^\circ\text{C}^{-1}$$

(d) (i) Speed of γ radiation = $3 \times 10^8 \text{ m/s}$ in air or vacuum.

- (e) Two sources of background radiations are :
1. The radioactive substances such as potassium (K-40), Carbon (C-14) and radium present inside our body.
 2. Cosmic rays, solar radiations coming from outer space and naturally occurring radioactive elements such as radon-222 etc.

SECTION-II

Answer 5.

- (a) (i) In uniform circular motion, speed remains constant.
- (ii) Force required for uniform circular motion is centripetal force. It is always directed along the radius of the circular path *i.e.*, towards the centre of the circle.
- (b) (i) **(1) A bottle opener** : It is a class II lever. Here the load (L) is in between the effort (E) and the fulcrum (F).
- (2) Sugar tongs** : It is a class III lever. Here the effort (E) is in between the fulcrum (F) and the load (L).

- (c) (i) Given : Weight = 400 N

$$W = mg$$

$$400 = m \times 10$$

$$m = 40 \text{ kg}$$

Now, Kinetic Energy

$$= \frac{1}{2} mv^2$$

$$500 = \frac{1}{2} \times 40 \times v^2$$

$$v = 5 \text{ m/s}$$

Answer 6.

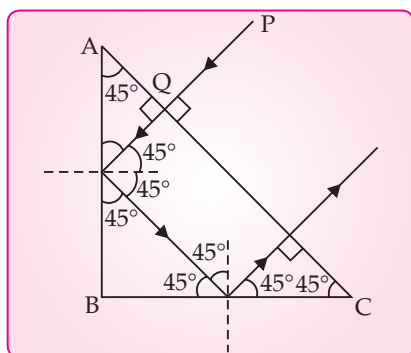
- (a) (i) **Critical angle** : It is the angle of incidence in the denser medium corresponding to which the angle of refraction in the rarer medium is 90° .

$$(ii) \quad n = \frac{1}{\sin i_c}$$

where, n = refractive index, i_c = critical angle.

- (iii) Depth of the tank remains the same when viewed normally from above.

- (b) (i)

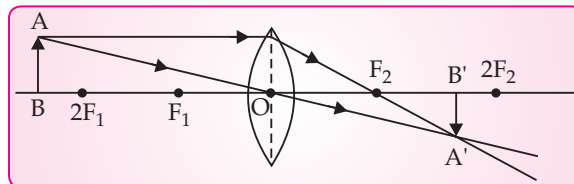


- (ii) Angle of deviation of the ray = 180° .

- (iii) Prism binoculars.

- (c) (i) Object is beyond $2F_1$.

- (ii)



Answer 7.

- (a) (i) **Resonance** : When the frequency of an externally applied periodic force on a body is equal to the natural frequency of the body, the body vibrates with increased amplitude thus producing a loud sound. This phenomenon is called resonance.

- (ii) 1. In resonance, it is necessary that frequency of externally applied force should be equal to natural frequency of the body whereas, it is not necessary for forced vibrations.

2. In forced vibrations, the amplitude of oscillations is small whereas, in resonance, the amplitude of vibration is large.

- (b) (i) First echo is heard from the nearest cliff so let its distance be d_1 .

\therefore Speed of sound

$$= \frac{\text{Total distance travelled, } 2d_1}{\text{Time taken, } t_1}$$

$$\therefore d_1 = \frac{v \times t_1}{2} = \frac{330 \times 3}{2} = 495 \text{ m}$$

and second echo is heard from farther cliff so let its distance be d_2 .

$$\therefore d_2 = \frac{v \times t_2}{2} = \frac{330 \times 4}{2} = 660 \text{ m}$$

\therefore Total distance = $660 + 495 = 1155 \text{ m}$.

- (ii) Echo will not be heard because to hear an echo, the minimum distance between the source and the reflecting surface should be 17 m.

- (c) (i) The diagram shows damped vibrations.

- (ii) A tuning fork vibrating in air.

(iii) The amplitude of the wave decreases due to energy loss against frictional force which the surrounding medium exerts on the vibrating body.

- (iv) After some time the amplitude gradually decreases and finally the body stops vibrating.

Answer 8.

- (a) (i) E.m.f. of a cell is greater than terminal voltage.
 (ii) Fuse is a safety device which is used to limit the current in an electric circuit.
 (iii) Characteristic properties of a fuse wire :
 1. It is made up of an alloy of lead and tin.
 2. It has high resistivity and low melting point.
- (b) (i) Electrical energy = $I^2 R t$.
 (ii) 220 volt.
 (iii) Electric lamps should be connected in parallel.

- (c) (i) In the given circuit, $8\ \Omega$ and $12\ \Omega$ are connected in parallel.

$$\therefore \frac{1}{R_1} = \frac{1}{8} + \frac{1}{12} = \frac{3+2}{24} = \frac{5}{24}$$

$$R_1 = 4.8\ \text{ohm.}$$

$$\text{Total resistance} = 4.8 + 7.2 = 12\ \text{ohm}$$

(ii) $V = IR$

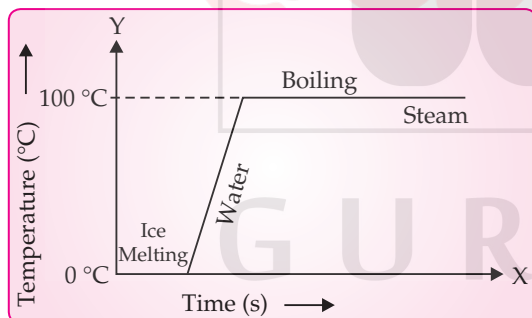
$$\Rightarrow 6 = I \times 12$$

$$\Rightarrow I = 0.5\ \text{A}$$

(iii) $V = IR = 0.5 \times 7.2 = 3.6\ \text{V.}$

Answer 9.

- (a) (i) Expression for the heat energy liberated by hot body = $mc\Delta T$
 i.e., $H = mc\Delta T$
 where m is the mass, c is the specific heat capacity and ΔT is the change in temperature.
 (ii) Temperature rise of the body on the Kelvin scale will be 25 K.
 (iii) Average K.E. of the molecules remain the same.



(b)

- (c) Let mass of water used = m g

By principle of calorimetry,

$$\text{Heat given} = \text{Heat taken}$$

$$m_1 c_1 \Delta t_1 = m L + m_2 c_2 \Delta t_2$$

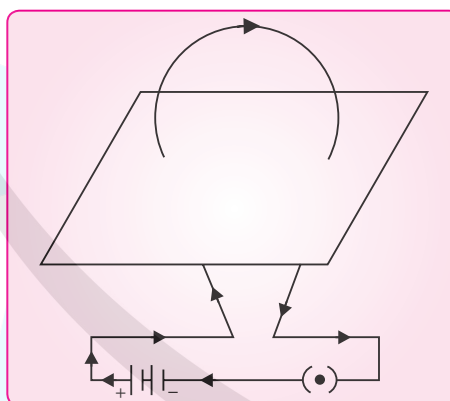
$$\text{or } m \times 4.2 \times (60 - 10) = 40 \times 336 + 40 \times 4.2 \times (10 - 0)$$

$$\text{or } m \times 4.2 \times 50 = 40 \times 336 + 1680$$

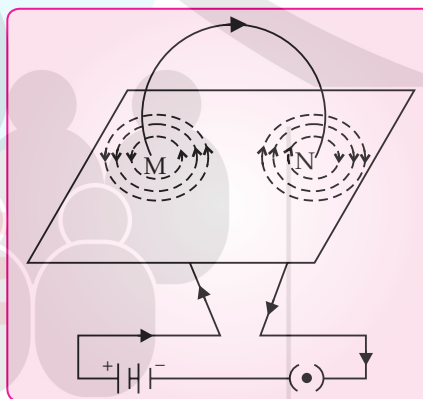
$$\therefore m = 72\ \text{g}$$

Answer 10.

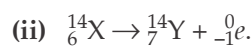
- (a) (i)



- (ii)



- (c) (i) Particle emitted is β -particle.



- (iii) Radioactivity is a nuclear phenomenon. Hence, oxidation has no effect on the nucleus of the substance.

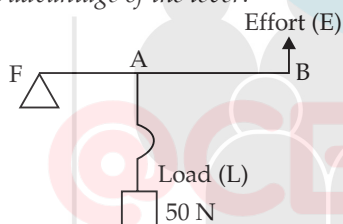
QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section

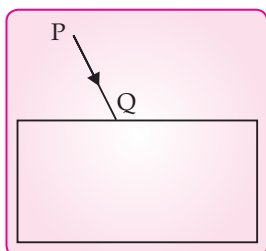
Question 1.

- (a) (i) Define one newton.
(ii) Write the relation between S. I. unit and C.G.S. unit of force. **[2]**
- (b) Where does the position of centre of gravity lie for : **[2]**
(i) a circular lamina (ii) a triangular lamina ?
- (c) A man can open a nut by applying a force of 150 N by using a lever handle of length 0.4 m. What should be the length of the handle if he is able to open it by applying a force of 60 N ? **[2]**
- (d) Name a machine which can be used to : **[2]**
(i) multiply force
(ii) change the direction of force applied.
- (e) The diagram below shows a lever in use.
(i) To which class of lever does it belong ?
(ii) If $FA = 40$ cm, $AB = 60$ cm, then find the mechanical advantage of the lever. **[2]**



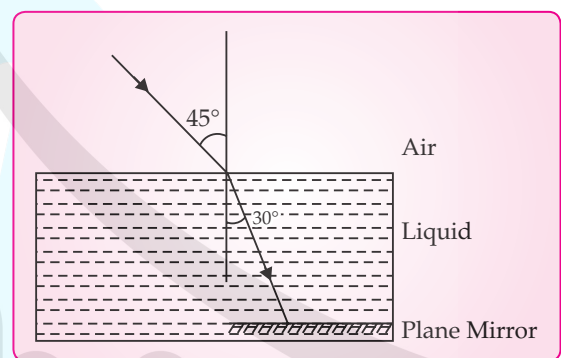
Question 2.

- (a) A ball of mass 200 g falls from a height of 5 m. What will be its kinetic energy when it just reaches the ground ? ($g = 9.8 \text{ m s}^{-2}$) **[2]**
- (b) In the diagram below, PQ is a ray of light incident on a rectangular glass block.
(i) Copy the diagram and complete the path of the ray of light through the glass block. In your diagram, mark the angle of incidence by letter 'i' and the angle of emergence by the letter 'e'.
(ii) How are the angles 'i' and 'e' related to each other ? **[2]**



- (c) A ray of monochromatic light enters a liquid from air as shown in the diagram given below :

- (i) Copy the diagram and show in the diagram the path of the ray of light after it strikes the mirror and reenters the medium of air.
(ii) Mark in your diagram the two angles on the surface of separation when the ray of light moves out from the liquid to air. **[2]**

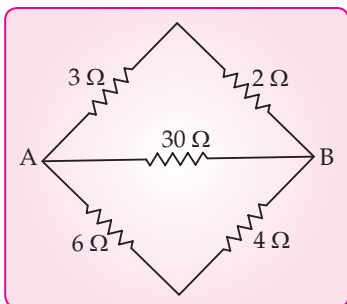


- (d) (i) When does a ray of light falling on a lens pass through it undeviated ?
(ii) Which lens can produce a real and inverted image of an object ? **[2]**
- (e) (i) How is the refractive index of a medium related to its real depth and apparent depth ?
(ii) Which characteristic property of light is responsible for the blue colour of the sky ? **[2]**

Question 3.

- (a) When acoustic resonance takes place, a loud sound is heard. Why does this happen ? Explain. **[2]**
- (b) (i) Three musical instruments give out notes at the frequencies listed below. Flute : 400 Hz; Guitar : 200 Hz; Trumpet : 500 Hz. Which one of these has the highest pitch ?
(ii) With which of the following frequencies does a tuning fork of 256 Hz resonate : 288 Hz, 314 Hz, 333 Hz, 512 Hz ? **[2]**
- (c) Two bulbs are marked 100 W, 220 V and 60 W, 110 V. Calculate the ratio of their resistances. **[2]**
- (d) (i) What is the colour code for the insulation on the earth wire ?
(ii) Write an expression for calculating electrical power in terms of current and resistance. **[2]**
- (e) Calculate the equivalent resistance between A and B from the following diagram : **[2]**

** Answer is not given due to change in the present syllabus.

**Question 4.**

- (a) Differentiate between heat and temperature. [2]
- (b) (i) Define Calorimetry. [2]
(ii) What is meant by Energy degradation? ** [2]
- (c) 200 g of hot water at 80°C is added to 300 g of cold water at 10°C . Calculate the final temperature of the mixture of water. Consider the heat taken by the container to be negligible. [specific heat capacity of water is $4200 \text{ J kg}^{-1} \text{ }^{\circ}\text{C}^{-1}$] [2]
- (d) Fill in the blanks in the following sentences with appropriate words : [2]
(i) During the emission of a beta particle, the number remains the same.
(ii) The minimum amount of energy required to emit an electron from a metal surface is called [2]
- (e) A mixture of radioactive substances gives off three types of radiations : [2]
(i) Name the radiation which travels with the speed of light.
(ii) Name the radiation which has the highest ionizing power. [2]

SECTION-II (40 Marks)

Attempt any four questions from this Section

Question 5.

- (a) (i) What is meant by an ideal machine ? [2]
(ii) Write a relationship between the mechanical advantage (M. A.) and velocity ratio (V. R.) of an ideal machine.
(iii) A coolie carrying a load on his head and moving on a frictionless horizontal platform does no work. Explain the reason why. [3]
- (b) Draw a diagram to show the energy changes in an oscillating simple pendulum. Indicate in your diagram how the total mechanical energy in it remains constant during the oscillation. [3]
- (c) A uniform metre scale can be balanced at the 70.0 cm mark when a mass of 0.05 kg is hung from the 94.0 cm mark. [4]
(i) Draw a diagram of the arrangement.
(ii) Find the mass of the metre scale.

** Answer is not given due to change in the present syllabus.

Question 6.

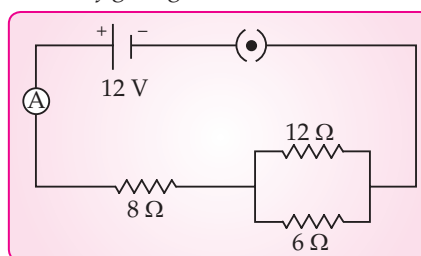
- (a) (i) State the laws of refraction of light. [2]
(ii) Write a relation between the angle of incidence (i), angle of emergence (e), angle of prism (A) and angle of deviation (d) for a ray of light passing through an equilateral prism. [3]
- (b) (i) Suggest one way, in each case, by which we can detect the presence of : [2]
(1) Infra-red radiations
(2) Ultraviolet radiations
(ii) Give one use of Infra-red radiations. [3]
- (c) An object is placed in front of a lens between its optical centre and the focus and forms a virtual, erect and diminished image. [2]
(i) Name the lens which formed this image.
(ii) Draw a ray diagram to show the formation of the image with the above stated characteristics. [4]

Question 7.

- (a) (i) Name the type of waves which are used for sound ranging. [2]
(ii) Why are these waves mentioned in (i) above, not audible to us ?
(iii) Give one use of sound ranging. [3]
- (b) A man standing 25 m away from a wall produces a sound and receives the reflected sound. [2]
(i) Calculate the time after which he receives the reflected sound if the speed of sound in air is 350 ms^{-1} .
(ii) Will the man be able to hear a distinct echo ? Give a reason for your answer. [3]
- (c) (i) Name two safety devices which are connected to the live wire of a household electrical circuit. [2]
(ii) Give one important function of each of these two devices. [4]

Question 8.

- (a) (i) Draw a graph of Potential difference (V) versus Current (I) for an ohmic resistor. [2]
(ii) How can you find the resistance of the resistor from this graph ?
(iii) What is a non-ohmic resistor ? [3]
- (b) (i) An electric bulb is marked 100 W, 250 V. What information does this convey ? [2]
(ii) How much current will the bulb draw if connected to a 250 V supply? [3]
- (c) Three resistors are connected to a 12 V battery as shown in the figure given below :



- (i) What is the current through the 8 ohm resistor ?
 (ii) What is the potential difference across the parallel combination of 6 ohm and 12 ohm resistor ?
 (iii) What is the current through the 6 ohm resistor ? [4]

Question 9.

- (a) (i) Explain why the weather becomes very cold after a hail storm.
 (ii) What happens to the heat supplied to a substance when the heat supplied causes no change in the temperature of the substance ? [3]
 (b) (i) When 1 g of ice at 0°C melts to form 1 g of water at 0°C then, is the latent heat absorbed by the ice or given out by it ?
 (ii) Give one example where high specific heat capacity of water is used as a heat reservoir.
 (iii) Give one example where high specific heat capacity of water is used for cooling purposes. [3]
 (c) 250 g of water at 30°C is present in a copper vessel of mass 50 g. Calculate the mass of ice required to bring down the temperature of the vessel and its contents to 5°C .
 Specific latent heat of fusion of ice = $336 \times 10^3 \text{ J kg}^{-1}$

Specific heat capacity of copper vessel = $400 \text{ J kg}^{-1} ^{\circ}\text{C}^{-1}$ Specific heat capacity of water = $4200 \text{ J kg}^{-1} ^{\circ}\text{C}^{-1}$. [4]**Question 10.**

- (a) (i) State two properties which a substance should possess when used as a thermionic emitter.**
 (ii) When an alpha particle gains two electrons it becomes neutral and becomes an atom of an element which is a rare gas. What is the name of this rare gas ? [3]
 (b) (i) Define radioactivity.
 (ii) What happens inside the nucleus that causes the emission of beta particle ?
 (iii) Express the above change in the form of an equation. [3]
 (c) (i) Name a device which is commonly used to convert an electrical signal into a visual signal.**
 (ii) The nucleus $^{202}_{84}\text{X}$ emits an alpha particle and forms the nucleus Y. Represent this change in the form of an equation.
 (iii) What changes will take place in the mass number and atomic number of the nucleus Y if it emits gamma radiations ? [4]

ANSWERS**SECTION-I****Answer 1.**

- (a) (i) **One Newton** : If a body of mass 1 kg moves with an acceleration of 1m/s^2 then force acting on the body is said to be one newton.
 (b) (i) Circular lamina – Centre of the lamina.
 (ii) Triangular lamina – Point of intersection of medians.
 (c) Given,
 $F_1 = 150 \text{ N}$
 $l_1 = 0.4 \text{ m}$
 $F_2 = 60 \text{ N}$
 $l_2 = ?$
 $\therefore \text{Force} \times \text{Perpendicular distance} = \text{Constant}$
 $F_1 \times l_1 = F_2 \times l_2$
 or $150 \times 0.4 = 60 \times l_2$
 $\therefore l_2 = 1 \text{ m}$
 (d) (i) Nut cracker.
 (ii) Single fixed pulley.
 (e) (i) Class II lever.
 (ii) We know,

$$L \times L.A. = E \times E.A.$$

$$M.A. = \frac{L}{E} = \frac{E.A.}{L.A.} = \frac{100}{40} = 2.5$$

Answer 2.

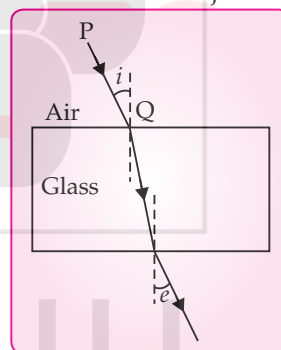
- (a) Given : $m = 200 \text{ g}, h = 5 \text{ m}$

When the ball reaches the ground, then

$$P.E. = K.E.$$

$$\therefore K.E. = mgh = \frac{200}{1000} \times 9.8 \times 5 = 9.8 \text{ joule}$$

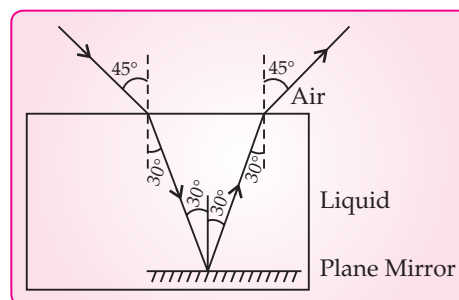
- (b) (i)



- (ii) When the incident ray is undergoing minimum deviation, the angle of incidence is equal to angle of emergence, i.e.,

$$\angle i = \angle e$$

- (c) (i)



** Answer is not given due to change in the present syllabus.

(ii) Angles are marked in the diagram.

(d) (i) A ray of light falling on the lens passes through it undeviated when it passes through optical centre of the lens.

(ii) Convex lens.

(e) (i) Refractive index = $\frac{\text{Real Depth}}{\text{Apparent Depth}}$

(ii) Scattering of light.

Answer 3.

(a) When acoustic resonance takes place, a loud sound is heard. This is because the natural frequency of the vibrating body becomes equal to the frequency of external applied force due to which amplitude becomes large and hence loud sound is heard.

(b) (i) Trumpet (500 Hz) will have the highest pitch.

(ii) Tuning fork will resonate with 512 Hz.

(c) Given :

| I st Bulb | II nd Bulb |
|-----------------------|-----------------------|
| $P_1 = 100 \text{ W}$ | $P_2 = 60 \text{ W}$ |
| $V_1 = 220 \text{ V}$ | $V_2 = 110 \text{ V}$ |

We know, $P = \frac{V^2}{R}$

or $R = \frac{V^2}{P}$

$\therefore \frac{R_1}{R_2} = \frac{\frac{V_1^2}{P_1}}{\frac{V_2^2}{P_2}} = \frac{V_1^2 \times P_2}{P_1 \times V_2^2}$

$= \frac{(220)^2 \times 60}{100 \times (110)^2}$

$= \frac{12}{5}$

$R_1 : R_2 = 12 : 5$

(d) (i) The colour code for the insulation of earth wire is green or yellow.

(ii) Electrical power in terms of current and resistance is

(e) $P = I^2 R$

$\frac{1}{R} = \frac{1}{5} + \frac{1}{30} + \frac{1}{10}$

$\frac{1}{R} = \frac{6+1+3}{30}$

$R = \frac{30}{10}$

$= 3 \Omega$

Answer 4.

| Heat | Temperature |
|----------------------------|---|
| 1. It is a form of energy. | 1. It is the sensation of hotness and coldness. |
| 2. Unit of heat is joule. | 2. Unit of temperature is °C or kelvin. |

(b) (i) **Calorimetry** : Measurement of quantity of heat exchanged is called calorimetry.

(c) Given : Mass of hot water $m = 200 \text{ g}$

Temperature = 80°C

Mass of cold water,

$m = 300 \text{ g}$

Temperature = 10°C

Let the final temperature of mixture = θ .

By the principle of calorimetry,

Heat given = Heat taken

$200 \times c \times (80 - \theta) = 300 \times c \times (\theta - 10)$

or $200 \times 80 - 200 \theta = 300 \theta - 300 \times 10$

or $16000 - 200 \theta = 300 \theta - 3000$

or $19000 = 500 \theta$

$\therefore \theta = 38^\circ\text{C}$

(d) (i) During the emission of a beta particle, the mass number remains the same.

(ii) The minimum amount of energy required to emit an electron from a metal surface is called work function.

(e) (i) γ -rays.

(ii) α -particles.

SECTION-II

Answer 5.

(a) (i) **Ideal Machine** : It is a machine in which work done on the machine is equal to the work done by the machine.

(ii) We know

Efficiency (η)

$= \frac{\text{Mechanical Advantage (M.A.)}}{\text{Velocity Ratio (V.R.)}}$

And for an ideal machine

$\eta = 1$

So, $\text{M.A.} = \text{V.R.}$

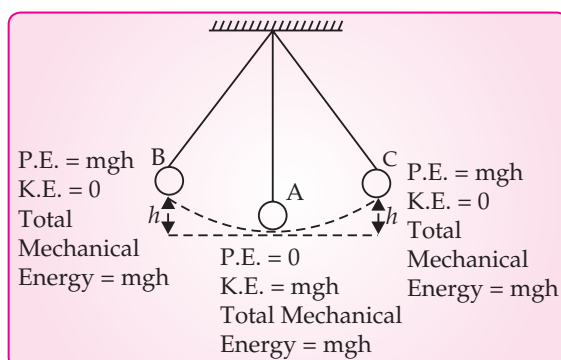
(iii) We know $W = F d \cos \theta$.

Since force is normal to displacement, so $\theta = 90^\circ$

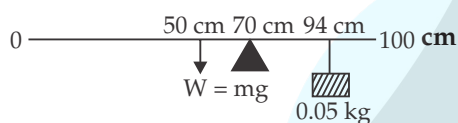
Hence work done,

$W = Fd \cos 90^\circ = 0.$

(b)



(c) (i) Diagram of the given arrangement is shown below :



(ii) As the given meter scale is a uniform scale. So its centre of gravity lies at its centre, i.e., 50 cm. Let mass of meter scale be m kg.

By principle of moments,

$$m_1 x_1 = m_2 x_2$$

$$\text{or } m \times (70 - 50) = 0.05 \times (94 - 70)$$

$$\therefore m = \frac{0.05 \times 24}{20}$$

$$= 0.06 \text{ kg}$$

$$= 60 \text{ g}$$

Answer 6.

(a) (i) Laws of refraction of light :

(1) The incident ray, refracted ray and normal at the point of incidence all lie in the same plane.

(2) The ratio of sine of angle of incidence to the sine of angle of refraction is a constant for a given pair of media and is known as refractive index of medium 2 with respect to medium 1.

It is generally represented by the Greek letter ${}_1\mu_2$.

$${}_1\mu_2 = \frac{\sin i}{\sin r}$$

(ii) $i + e = A + d$.

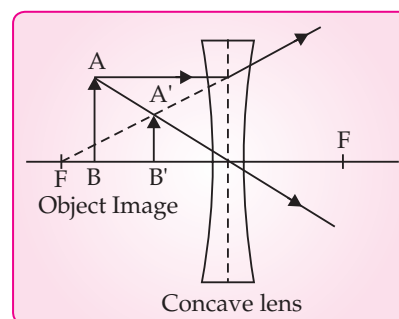
(b) (i) (1) **Infra-red radiations** : These are detected by a thermopile.

(2) **Ultraviolet radiation** : When a silver chloride solution is taken in a test tube and is passed from red to violet light no change is seen. But beyond the violet end, the solution first turns violet and then it turns dark brown.

(ii) Infrared radiations are used in remote control of television.

(c) (i) Concave lens.

(ii)



Answer 7.

(a) (i) Ultrasonic waves.

(ii) These waves are not audible to us because the frequency lies beyond the limits of audibility (20 Hz - 20000 Hz).

(iii) These are used in determining the depth of a sea.

(b) (i) We know that, $v = \frac{2d}{t}$

Here, $d = 25 \text{ m}$

$$v = 350 \text{ m/s}$$

$$\Rightarrow 350 = \frac{50}{t}$$

$$\therefore t = \frac{1}{7} \text{ sec}$$

$$= 0.14 \text{ sec.}$$

(ii) Echo will be heard because the conditions required for the formulation of echo are fulfilled i.e., the distance is more than 17 m and time period is more than 0.1 second.

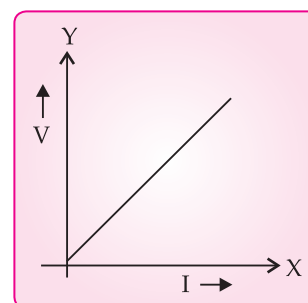
(c) (i) 1. Switch 2. Fuse.

(ii) **1. Functions of Switch** : It is an on-off device which is used to either connect or disconnect an electric appliance in a circuit. It is connected in the live wire.

2. Function of Fuse : It is used to limit the current in the electric circuit.

Answer 8.

(a) (i)



(ii) We can find resistance by finding the slope of the graph.

(iii) **Non-ohmic Resistor** : This is a resistor which does not obey Ohm's Law. V-I graph for non-ohmic resistor is not a straight line.

(b) (i) Given : 100 W, 250 V.

Information :

1. It conveys that when the bulb is connected to a 250 V supply it consumes 100 J of energy in 1 second or 100 W power.

2. It will work at its maximum capacity at 250 V.

(ii) Given : $V = 250 \text{ V}$, $I = ?$

We know, $P = VI$

$$\Rightarrow 100 = 250 \times I$$

$$\therefore I = \frac{100}{250} = 0.4 \text{ A.}$$

(c) (i) 6 ohm and 12 ohm resistances are connected in parallel.

$$\text{So, } \frac{1}{R_1} = \frac{1}{6} + \frac{1}{12} = \frac{2+1}{12} = \frac{3}{12}$$

$$\Rightarrow \frac{1}{R_1} = \frac{1}{4}$$

$$\Rightarrow R_1 = 4 \text{ ohm}$$

$$\therefore \text{Total Resistance, } R = 8 + 4 = 12 \text{ ohm}$$

$$\text{Now, } V = IR$$

$$\Rightarrow 12 = I \times 12$$

$$\therefore I = 1 \text{ A}$$

$$(ii) V' = IR_1 = 1 \times 4 = 4 \text{ V}$$

$$(iii) V' = I_1 R'$$

$$\Rightarrow 4 = I_1 \times 6$$

$$\therefore I_1 = \frac{4}{6} = 0.67 \text{ A}$$

Answer 9.

(a) (i) It becomes very cold after the hail storm because ice begins to melt by absorbing heat energy from the surroundings. This decreases the temperature of the surroundings which leads to the cooling of atmosphere.

(ii) This heat supplied is used in the change of state. This heat is known as latent heat.

(b) (i) Latent heat is absorbed by the melting ice.

(ii) Water is used as heat reservoir in cold countries for preservation of juice bottle to avoid them freezing.

(iii) In car radiators.

(c) Given :

Mass of water = 250 g

Temperature of water = 30°C

Mass of vessel = 50 g

Final temperature = 5°C

Let mass of ice = m g

By the principle of calorimetry,

Heat given = Heat taken

$$\text{or } 250 \times 4.2 \times (30 - 5) + 50 \times 0.4 \times (30 - 5) = m \times 336 + m \times 4.2 \times 5$$

$$\text{or } 26250 + 500 = 336m + 21m$$

$$\text{or } 26750 = 357m$$

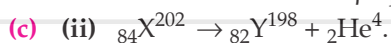
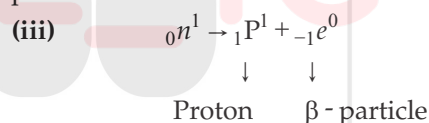
$$\therefore m = 74.9 \text{ g}$$

Answer 10.

(a) (ii) Helium gas.

(b) (i) **Radioactivity**: It is the process of spontaneous emission of α , β and γ radiations from the nuclei of atoms during their decay.

(ii) In an unstable nucleus, number of neutrons are more than number of protons. In such a case, a neutron may change to a proton to achieve stability by emitting an electron called beta particle.



(iii) No change in mass number and atomic number when γ radiations are emitted out.

QUESTIONS

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper. The time given at the head of this Paper is the time allowed for writing the answers.

Section I is compulsory. Attempt any four questions from **Section II**.

The intended marks for questions or parts of questions are given in brackets [].

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Choose the correct answer from the options given below : [5]

(i) The element with highest ionization potential, is :

- (A) Hydrogen (B) Caesium
(C) Radon (D) Helium

(ii) The inert electrode used in the electrolysis of acidified water, is :

- (A) Nickel (B) Platinum
(C) Copper (D) Silver

(iii) A compound with low boiling point, is :

- (A) Sodium chloride
(B) Calcium chloride
(C) Potassium chloride
(D) Carbon tetrachloride

(iv) The acid which can produce carbon from cane sugar, is :

- (A) Concentrated Hydrochloric acid
(B) Concentrated Nitric acid
(C) Concentrated Sulphuric acid
(D) Concentrated Acetic acid

(v) The organic compound having a triple carbon-carbon covalent bond, is :

- (A) C_3H_4 (B) C_3H_6
(C) C_3H_8 (D) C_4H_{10}

- (b) State one relevant observation for each of the following reactions : [5]

(i) Action of concentrated nitric acid on copper.

(ii) Addition of excess ammonium hydroxide into copper sulphate solution.

(iii) A piece of sodium metal is put into ethanol at room temperature.

(iv) Zinc carbonate is heated strongly.

(v) Sulphide ore is added to a tank containing oil and water, and then stirred or agitated with air.

- (c) Write a balanced chemical equation for each of the following reactions : [5]

(i) Reaction of carbon powder and concentrated nitric acid.

(ii) Reaction of excess ammonia with chlorine.

(iii) Reaction of lead nitrate solution with ammonium hydroxide.

(iv) Producing ethane from bromo ethane using Zn/Cu couple in alcohol

(v) Complete combustion of ethane.

- (d) (i) Draw the structural formula for each of the following : [5]

- 2, 2 dimethyl pentane
- Methanol
- Iso propane

(ii) Write the IUPAC name for the following compounds :

- Acetaldehyde
- Acetylene

- (e) State one relevant reason for each of the following : [5]

(i) Graphite anode is preferred to platinum in the electrolysis of molten lead bromide.

(ii) Soda lime is preferred to sodium hydroxide in the laboratory preparation of methane.

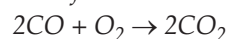
(iii) Hydrated copper sulphate crystals turn white on heating.

(iv) Concentrated nitric acid appears yellow, when it is left for a while in a glass bottle.

(v) Hydrogen chloride gas fumes in moist air.

- (f) Calculate : [5]

(i) The amount of each reactant required to produce 750 ml of carbon dioxide, when two volumes of carbon monoxide combine with one volume of oxygen to produce two volumes of carbon dioxide :



(ii) The volume occupied by 80 g of carbon dioxide at STP.

(iii) Calculate the number of molecules in 4.4 gm of CO_2 .

[Atomic mass of C = 12, O = 16]

(iv) State the law associated in question no. (f) (i) above.

(g) Give one word or a phrase for the following statements : [5]

(i) The chemical bond formed by a shared pair of electrons, each bonding atom contributing one electron to the pair.

(ii) Electrode used as cathode in electrorefining of impure copper.

(iii) The substance prepared by adding other metals to a base metal in appropriate proportions to obtain certain desirable properties.

(iv) The tendency of an atom to attract electrons to itself when combined in a compound.

(v) The reaction in which carboxylic acid reacts with alcohol in the presence of conc. H_2SO_4 to form a substance having a fruity smell.

(h) Fill in the blanks from the choices given in brackets : [5]

(i) The polar covalent compound in gaseous state that does not conduct electricity is

(carbon tetra chloride, ammonia, methane)

(ii) A salt prepared by displacement reaction is

(ferric chloride, ferrous chloride, silver chloride)

(iii) The number of moles in 11 gm of nitrogen gas is

(0.39, 0.49, 0.29) [atomic mass of N = 14]

(iv) An alkali which completely dissociates into ions is

(ammonium hydroxide, calcium hydroxide, lithium hydroxide)

(v) An alloy used to make statues is

(bronze, brass, fuse metal)

SECTION-II (40 Marks)

Attempt any four questions from this Section

Question 2.

(a) The following table represent the elements and the atomic number : [3]

With reference to this, answer the following using only the alphabets given in the table.

| Element | Atomic number |
|---------|---------------|
| P | 13 |
| Q | 7 |
| R | 10 |

(i) Which element combines with hydrogen to form a basic gas ?

(ii) Which element has an electron affinity zero ?

(iii) Name the element, which forms an ionic compound with chlorine.

(b) Draw the electron dot diagram for the compounds given below. Represent the electrons by (.) and (x) in the diagram : [3]

[Atomic No. Ca = 20, O = 8, Cl = 17, H = 1]

(i) Calcium oxide

(ii) Chlorine molecule

(iii) Water molecule

(c) Choose the correct word which refers to the process of electrolysis from A to E, to match the description (i) to (iv) : [4]

A : Oxidation B : Cathode C : Anode

D : An electrolyte E : Reduction

(i) Conducts electricity in aqueous or in molten state.

(ii) Loss of electron takes place at anode.

(iii) A reducing electrode.

(iv) Electrode connected to the positive end or terminal of the battery.

Question 3.

(a) Baeyer's process is used to concentrate bauxite ore to alumina. : [3]

Give balanced chemical equations for the reaction taking place for its conversion from bauxite to alumina.

(b) Complete the following by selecting the correct option from the choices given : [3]

(i) pH of acetic acid is greater than dilute sulphuric acid. So acetic acid contains concentration of H^+ ions. (greater, same, low)

(ii) The indicator which does not change colour on passage of HCl gas is (methyl orange, moist blue litmus, phenolphthalein)

(iii) The acid which cannot act as an oxidizing agent is (conc. H_2SO_4 , conc. HNO_3 , conc. HCl)

(c) Match the gases given in column I to the identification of the gases mentioned in column II : [4]

| Column I | Column II |
|-----------------------|---|
| (i) Hydrogen sulphide | A. Turns acidified potassium dichromate solution green. |
| (ii) Nitric oxide | B. Turns lime water milky. |
| (iii) Carbon dioxide | C. Turns reddish brown when it reacts with oxygen. |
| (iv) Sulphur dioxide | D. Turns moist lead acetate paper silvery black. |

Question 4.

- (a) Differentiate between the following pairs based on the information given in the brackets : [3]
- Conductor and electrolyte (conducting particles)
 - Cations and anions (formation from an atom)
 - Acid and Alkali (formation of type of ions)
- (b) Draw the structures of isomers of pentane. [3]
- (c) Hydrogen chloride gas is prepared in the laboratory using concentrated sulphuric acid and sodium chloride. Answer the questions that follow based on this reaction : [4]
- Give the balanced chemical equation for the reaction with suitable conditions(s) if any.
 - Why is concentrated sulphuric acid used instead of concentrated nitric acid ?
 - How is the gas collected ?
 - Name the drying agent not used for drying the gas.

Question 5.

- (a) Distinguish between the following pairs of compounds using a reagent as a chemical test : [3]
- Calcium nitrate and Zinc nitrate solution.
 - Ammonium sulphate crystals and Sodium sulphate crystals.
 - Magnesium chloride and Magnesium nitrate solution.
- (b) Calculate the percentage of : [3]
- Fluorine
 - Sodium and
 - Aluminium
- in sodium aluminium fluoride $[\text{Na}_3\text{AlF}_6]$, to the nearest whole number. [Atomic Mass : Na = 23, Al = 27, F = 19]
- (c) (i) State the volume occupied by 40 gm of methane at STP, if its vapour density (V.D.) is 8. [4]
- (i) Calculate the number of moles present in 160 gm of NaOH.

[Atomic Mass : Na = 23, H = 1, O = 16]

Question 6.

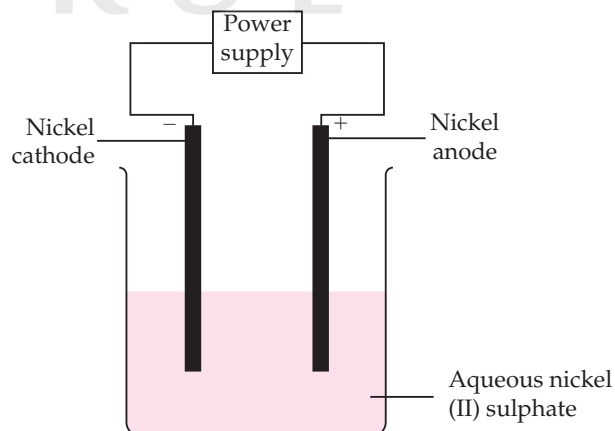
- (a) Identify the salts **P**, **Q**, **R** from the following observations [3]
- Salt **P** has light bluish green colour. On heating, it produces a black coloured residue. Salt **P** produces brisk effervescence with dil. HCl and the gas evolved turns lime water milky, but no action with acidified potassium dichromate solution.
 - Salt **Q** is white in colour. On strong heating, it produces buff yellow residue and liberates reddish brown gas. Solution of salt **Q** produces chalky white insoluble precipitate with excess of ammonium hydroxide.

(iii) Salt **R** is black in colour. On reacting with concentrated HCl, it liberates a pungent greenish yellow gas which turns moist starch iodide paper blue black.

- (b) Identify the substance underlined in each of the following : [3]
- The electrode that increases in mass during the electro-refining of silver.
 - The acid that is a dehydrating as well as a drying agent.
 - The catalyst used to oxidize ammonia into nitric oxide.
- (c) Copy and complete the following paragraph using the options given in brackets : [4]
- Alkenes are a homologous series of (i) (saturated / unsaturated) hydrocarbons characterised by the general formula (ii) ($\text{C}_n\text{H}_{2n+2}$ / C_nH_{2n}). Alkenes undergo (iii) (addition / substitution) reactions and also undergo (iv) (hydrogenation / dehydrogenation) to form alkanes.

Question 7.

- (a) Write balanced chemical equations, for the preparation of the given salts : [3]
- (i) to (iii) by using the methods A to C respectively :
A : Neutralization B : Precipitation C : Titration
- Copper sulphate
 - Zinc carbonate
 - Ammonium sulphate
- (b) Name the following elements : [3]
- An alkaline earth metal present in group 2 and period 3.
 - A trivalent metal used to make light tools.
 - A monovalent non-metal present in fluorspar.
- (c) An aqueous solution of nickel (II) sulphate was electrolyzed using nickel electrodes. Observe the diagram and answer the questions that follow : [4]

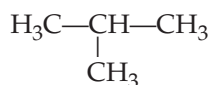


1. $Ni \rightarrow Ni^{2+} + 2e^{-}$
2. $Ni + 2e^{-} \rightarrow Ni^{2+}$
3. $Ni^{2+} \rightarrow Ni + 2e^{-}$
4. $Ni^{2+} + 2e^{-} \rightarrow Ni$

SECTION-I

$$\begin{array}{c} \text{H} \\ | \\ \text{H}-\text{C}-\text{O}-\text{H} \\ | \\ \text{H} \end{array}$$

3. Isopropane

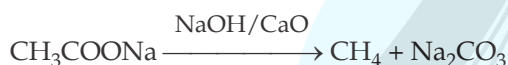


(ii) 1. IUPAC name of acetaldehyde (CH_3CHO) is Ethanal.

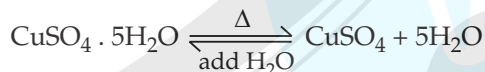
2. IUPAC name of acetylene ($\text{HC} \equiv \text{CH}$) is Ethyne.

(e) (i) Graphite anode is preferred in the electrolysis of molten lead bromide, because graphite remains unaffected by the reactive bromine vapours which are released at the anode.

(ii) Soda lime is preferred to sodium hydroxide in the laboratory preparation for methane because Sodium hydroxide is deliquescent and absorbs water from atmosphere.



(iii) Hydrated copper sulphate crystals turn white on heating due to the loss of water molecules upon heating.



(iv) Concentrated nitric acid appears yellow, when it is left for a while in a glass bottle because Nitric acid has tendency to decompose slowly in presence of sunlight and produce nitrogen dioxide gas, which is reddish brown in colour. This liberated NO_2 gas dissolves in nitric acid and gives it a yellowish colour.



(v) Hydrogen chloride gas fumes in moist air because it is highly soluble in water and when it comes in contact with air containing water droplets it dissolves in water and forms mist, which appears as white fumes.

(f) (i) $2\text{CO} + \text{O}_2 \rightarrow 2\text{CO}_2$

Here, 2 moles of CO react with 1 mole of O_2

At STP, 1 mole of any ideal gas takes up 22.4 L.

So, 44.8 L of CO reacts with 22.4 L of O_2 to give 44.8 L of CO_2 .

So, 750 ml of CO_2 production will need 750 ml of CO and 375 ml of O_2

(ii) Molecular weight of $\text{CO}_2 = 44 \text{ g}$

So, weight of one mole CO_2 gas is 44 g

Or, 44 g of CO_2 occupies 22.4 L at STP

$$\therefore 80 \text{ g will occupy } \frac{22.4}{44} \times 80 \\ = 40.72 \text{ L}$$

or = 40720 mL

(iii) Weight of one mole CO_2 gas is 44 g

Or, 44 g CO_2 contains 6.02×10^{23} CO_2 molecules.

So, 4.4 g of CO_2 will contain 6.023×10^{22} CO_2 molecules.

(iv) Gay Lussac's law of combining volumes of gases is associated here and it states that : "When gases react, they do so in volumes which bears a simple whole number ratio to one another and to the volumes of the products, if gaseous, provided the temperature and pressure of the reacting gases and their products remain constant".

(g) (i) Covalent bond

(ii) Pure (thin block) of copper

(iii) Alloys

(iv) Electronegativity

(v) Esterification

(h) (i) ammonia

(ii) ferric chloride

(iii) 0.39

(iv) calcium hydroxide

(v) bronze

SECTION-II

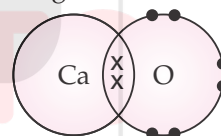
Answers 2.

(a) (i) Q (QH_3 is the basic gas) with $Z = 7$

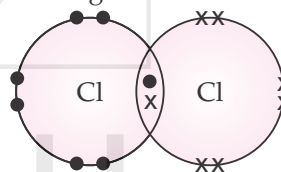
(ii) R with $Z = 10$

(iii) P with $Z = 18$

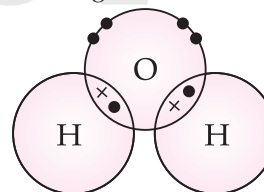
(b) (i) Electron dot diagram for Calcium oxide



(ii) Electron dot diagram for chlorine molecule



(iii) Electron dot diagram for water molecule



(c) (i) Conducts electricity in aqueous or in molten state – D: An electrolyte

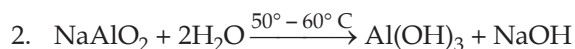
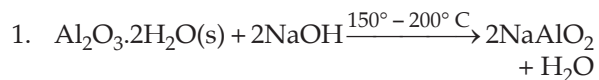
(ii) Loss of electron takes place at anode – A: Oxidation

(iii) A reducing electrode – B: Cathode

(iv) Electrode connected to the positive end or terminal of the battery – C: Anode

Answers 3.

(a) Chemical reactions related to Baeyer's process for the conversion from bauxite to alumina:



(b) (i) low (ii) phenolphthalein
(iii) conc. HCl

(c)

| Column I | Column II |
|-----------------------|---|
| (i) Hydrogen sulphide | D. Turns moist lead acetate paper silvery black. |
| (ii) Nitric oxide | C. Turns reddish brown when reacts with oxygen. |
| (iii) Carbon dioxide | B. Turns lime water milky. |
| (iv) Sulphur dioxide | A. Turns acidified potassium dichromate solution green. |

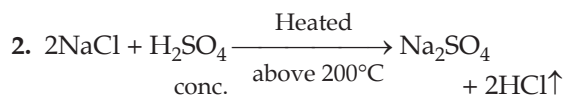
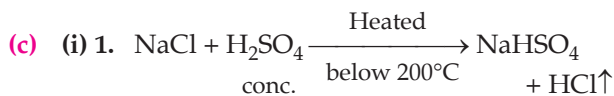
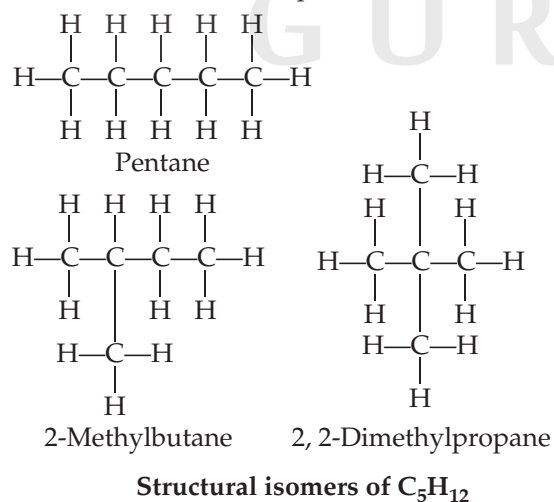
Answers 4.

(a) (i) Conductor has electrons as the conduction particles whereas ions are the conducting species in electrolyte.

(ii) Cations are formed when a neutral atom loses electrons whereas anions are formed when a neutral atom gains electron.

(iii) An acid dissociates to furnish H^+ ions and the conjugate base which is negatively charged and a base dissociates to give OH^- ions and a conjugate acid which is positively charged.

(b) Structures of isomers of pentane are as follows :



(ii) Concentrated nitric acid is not used for preparation of HCl gas as it is very strong oxidising agent and will end up oxidising HCl gas.

(iii) HCl is collected by the upward displacement of air.

(iv) Calcium oxide.

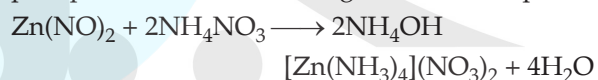
Answers 5.

(a) (i) Calcium nitrate and Zinc nitrate solutions can be distinguish by reacting with ammonium hydroxide solution :

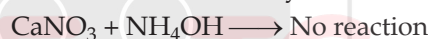
1. On adding ammonium hydroxide gelatinous white precipitates of zinc hydroxide are formed.



2. On adding excess of ammonium hydroxide, the precipitates dissolve forming a soluble complex.

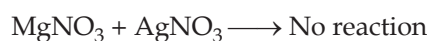
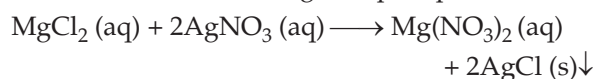


No visible reaction occurs when we add calcium nitrate to ammonium hydroxide.



(ii) Ammonium sulphate crystals give pungent colourless gas Ammonia (NH_3) when heated. When NH_3 gas comes in contact with a glass rod dipped in HCl white fumes of NH_4Cl are produced. Sodium sulphate crystals do not undergo the above reaction sequence, hence can be differentiated from ammonium sulphate crystals.

(iii) Magnesium chloride reacts with silver nitrate solution to give precipitate of silver chloride, whereas magnesium nitrate does not react with silver nitrate solution to give a precipitate.



(b) Molecular weight of Na_3AlF_6

$$3 \times 23 + 27 + 6 \times 19 = 210$$

Now,

$$\begin{aligned} \text{(i) Percentage of fluorine} &= \frac{(6 \times 19)}{210} \times 100 \\ &= 54.2\% \end{aligned}$$

$$\begin{aligned} \text{(ii) Percentage of sodium} &= \frac{(3 \times 23)}{210} \times 100 \\ &= 32.8\% \end{aligned}$$

$$\begin{aligned} \text{(iii) Percentage of aluminium} &= \frac{27}{210} \times 100 \\ &= 12.8\% \end{aligned}$$

- (c) (i) Molecular weight = $2 \times$ Vapour density at STP

In case of methane, substituting the given information –

$$\begin{aligned} \text{Molecular weight} &= 2 \times 8 \\ &= 16 \end{aligned}$$

Molecular weight of methane = 16 which means 16 g of methane occupy 22.4 L volume at STP.

$$\begin{aligned} \text{So, 40 g of methane will occupy} &= \frac{22.4}{16} \times 40 \\ &= 56 \text{ L} \end{aligned}$$

$$\begin{aligned} \text{(ii) Number of moles} &= \frac{\text{Given weight of substance}}{\text{Molecular weight of substance}} \end{aligned}$$

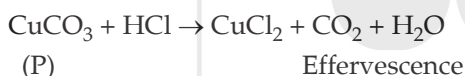
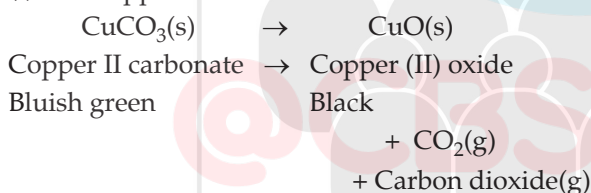
$$\begin{aligned} \text{Molecular weight of NaOH} &= 23 + 16 + 1 \\ &= 40 \end{aligned}$$

$$\text{No. of moles} = \frac{160}{40} = 4$$

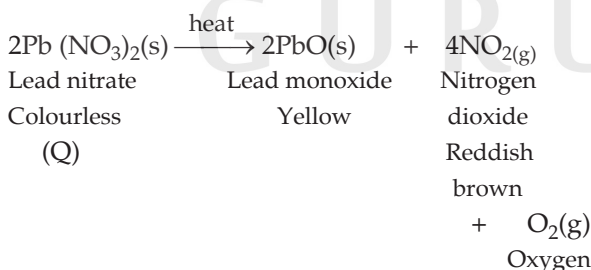
There are 4 moles of NaOH in 160 g of NaOH

Answers 6.

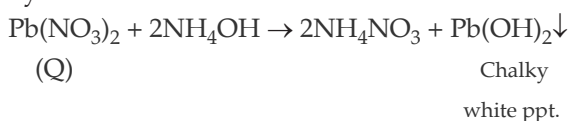
- (a) (i) P is Copper carbonate.



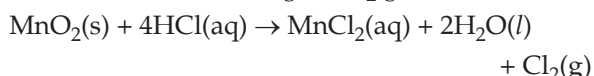
- (ii) The salt Q is Lead nitrate



When reacted with ammonium hydroxide solution it gives a chalky white precipitate of lead hydroxide :



- (iii) The salt R is MnO_2 , which is black in colour and reacts with HCl to give Cl_2 gas

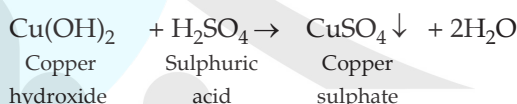


Chlorine gas is pungent and greenish yellow in colour. The chlorine gas oxidises some of the iodide ions in the starch iodide paper to create iodine diatomic molecules. These molecules react with the iodide ions and the starch to form a charge-transfer complex of blue colour.

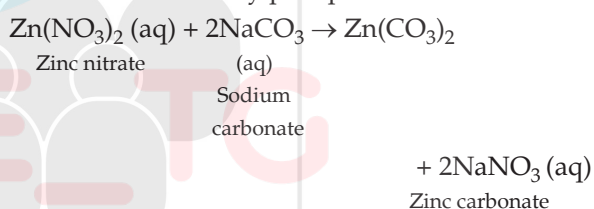
- (b) (i) Cathode
(ii) Conc. H_2SO_4
(iii) Platinum Rhodium catalyst in Ostwald's process.
(c) (i) unsaturated
(ii) C_nH_{2n}
(iii) addition
(iv) hydrogenation

Answers 7.

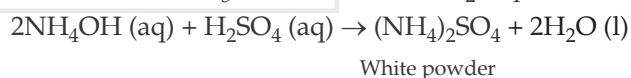
- (a) (i) Copper sulphate by neutralization



- (ii) Zinc carbonate by precipitation



- (iii) Ammonium sulphate can be prepared by titration of NH_3 solution with dil. H_2SO_4 solution.



- (b) (i) Magnesium or Mg
(ii) Aluminium or Al
(iii) Fluorine or F
(c) (i) At cathode reduction takes place and deposition of Ni takes place as Ni^{2+} ions from solution convert to Ni metal.



At anode oxidation takes place and Ni metal converts to Ni^{2+} ions.



- (ii) H^+ is the spectator cation.

- (iii) 1. $\text{Ni} \rightarrow \text{Ni}^{2+} + 2\text{e}^-$

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Choose the correct answer from the options given below : [5]

(i) An electrolyte which completely dissociates into ions is :

- (A) Alcohol (B) Carbonic acid
(C) Sucrose (D) Sodium hydroxide

(ii) The most electronegative element from the following elements is :

- (A) Magnesium (B) Chlorine
(C) Aluminium (D) Sulphur

(iii) The reason for using aluminium in the alloy duralumin is :

- (A) Aluminium is brittle.
(B) Aluminium gives strength.
(C) Aluminium brings lightness.
(D) Aluminium lowers melting point.

(iv) The drying agent used to dry HCl gas is :

- (A) Conc. H_2SO_4 (B) ZnO
(C) Al_2O_3 (D) CaO

(v) A hydrocarbon which is a greenhouse gas is :

- (A) Acetylene (B) Ethylene
(C) Ethane (D) Methane

- (b) Fill in the blanks with the choices given in brackets : [5]

(i) Conversion of ethanol to ethene by the action of concentrated sulphuric acid is an example of (dehydration/dehydrogenation/dehydrohalogenation)

(ii) When sodium chloride is heated with concentrated sulphuric acid below 200°C , one of the products formed is (sodium bisulphate/sodium sulphate/chlorine)

(iii) Ammonia reacts with excess chlorine to form (nitrogen/nitrogen trichloride/ammonium chloride)

(iv) Substitution reaction are characteristic reactions of (alkynes/alkenes/alkanes)

(v) In period 3, the most metallic element is (Sodium / magnesium / aluminium)

- (c) Write a balanced chemical equation for each of the following reactions : [5]

(i) Reduction of copper (II) oxide by hydrogen.

(ii) Action of dilute sulphuric acid on sodium hydroxide.

(iii) Action of dilute sulphuric acid on zinc sulphide.

(iv) Ammonium hydroxide is added to ferrous sulphate solution.

(v) Chlorine gas is reacted with ethene.

- (d) State one observation for each of the following : [5]

(i) Concentrated nitric acid is reacted with sulphur.

(ii) Ammonia gas is passed over heated copper (II) oxide.

(iii) Copper sulphate solution is electrolysed using copper electrodes.

(iv) A small piece of zinc is added to dilute hydrochloric acid.

(v) Lead nitrate is heated strongly in a test tube.

- (e) (i) Calculate : [5]

1. The number of moles in 12g of oxygen gas.

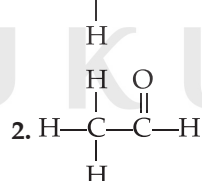
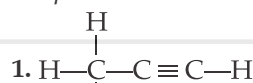
[O = 16]

2. The weight of 10^{22} atoms of carbon.

[C = 12, Avogadro's No. = 6×10^{23}]

(ii) Molecular formula of a compound is $\text{C}_6\text{H}_{18}\text{O}_3$. Find its empirical formula.

- (f) (i) Give the IUPAC name of the following organic compounds : [5]



(ii) What is the special feature of the structure of ethyne ?

(iii) Name the saturated hydrocarbon containing two carbon atoms.

(iv) Give the structural formula of acetic acid.

- (g) Give the appropriate term defined by the statements given below : [5]

(i) The formula that represents the simplest ratio of the various elements present in one molecule of the compound.

- (ii) The substance that releases hydronium ion as the only positive ion when dissolved in water.
- (iii) The tendency of an atom to attract electrons towards itself when combined in a covalent compound.
- (iv) The process by which certain ores, specially carbonates are converted to oxide in the absence of air.
- (v) The covalent bond in which the electrons are shared equally between the combining atoms.
- (h) Arrange the following according to the instructions given in brackets : [5]
- (i) K, Pb, Ca, Zn. (In the increasing order of the reactivity)
- (ii) Mg^{2+} , Cu^{2+} , Na^+ , H^+ (In the order of preferential discharge at the cathode)
- (iii) Li, K, Na, H (In the decreasing order of their ionization potential)
- (iv) F, B, N, O (In the increasing order of electron affinity)
- (v) Ethane, methane, ethene, ethyne. (In the increasing order of the molecular weight) [H = 1, C = 12]

SECTION-II (40 Marks)

Question 2.

| <i>Solution</i> | <i>pH value</i> |
|-----------------|-----------------|
| <i>A</i> | 12 |
| <i>B</i> | 2 |
| <i>C</i> | 7 |

[illegible]

Question 3.

Question 4.

- (iii) The compound that reacts with acetic acid to form ethyl ethanoate.
 (iv) The compound formed by complete chlorination of ethyne.

Question 5.

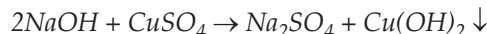
- (a) Give the chemical formula of : [6]
 (i) Bauxite
 (ii) Cryolite
 (iii) Sodium aluminate.
- (b) Answer the following question based on the extraction of aluminium from alumina by **Hall-Heroult's Process** : [3]
 (i) What is the function of cryolite used along with alumina as the electrolyte ?
 (ii) Why is powdered coke sprinkled on top of the electrolyte ?
 (iii) Name the electrode, from which aluminium is collected.
- (c) Match the alloys given in column I to the uses given in column II. [4]

| COLUMN I | COLUMN II |
|----------------------|------------------------|
| (i) Duralumin | A. Electrical fuse |
| (ii) Solder | B. Surgical instrument |
| (iii) Brass | C. Aircraft body |
| (iv) Stainless Steel | D. Decorative articles |

Question 6.

- (a) Identify the substances underlined. [3]
 (i) The catalyst used to oxidise ammonia.
 (ii) The organic compound which when solidified, forms an ice like mass.
 (iii) The dilute acid which is an oxidizing agent.

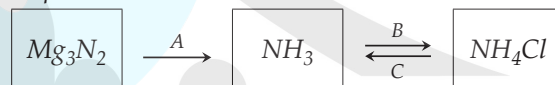
- (b) Copper sulphate solution reacts with sodium hydroxide solution to form a precipitate of copper hydroxide according to the equation : [3]



- (i) What mass of copper hydroxide is precipitated by using 200 gm of sodium hydroxide ?
 [H = 1, O = 16, Na = 23, S = 32, Cu = 64]
 (ii) What is the colour of the precipitate formed ?
- (c) Find the **empirical formula** and the **molecular formula** of an organic compound from the data given below : [4]
 C = 75.92%, H = 6.32% and N = 17.76%
 The vapour density of the compound is 39.5
 [C = 12, H = 1, N = 14]

Question 7.

- (a) Name the gas evolved in each of the following cases : [3]
 (i) Alumina undergoes electrolytic reduction.
 (ii) Ethene undergoes hydrogenation reaction.
 (iii) Ammonia reacts with heated copper oxide.
- (b) Study the flow chart given and give balanced equations to represent the reactions A, B and C :



- (c) Copy and complete the following table which refers to the industrial method for the preparation of ammonia and sulphuric acid. [4]

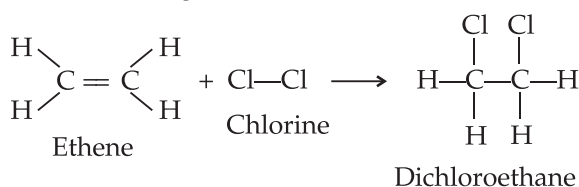
| Name of the compound | Name of the process | Catalytic equation (with the catalyst) |
|----------------------|---------------------|--|
| Ammonia | (i)..... | (ii)..... |
| Sulphuric acid | (iii)..... | (iv)..... |

ANSWERS**SECTION-I****Answers 1.**

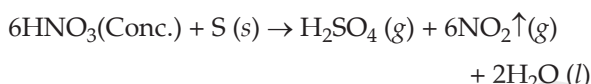
- (a) (i) (D) sodium hydroxide
 (ii) (B) Chlorine
 (iii) (C) Aluminium brings lightness
 (iv) (A) Conc. H_2SO_4
 (v) (D) Methane
- (b) (i) dehydration
 (ii) sodium bisulphate or sodium hydrogen Sulphate
 (iii) ammonium chloride
 (iv) Alkanes
 (v) Sodium

- (c) (i) Reduction of copper (II) oxide by hydrogen-
 $\text{CuO (s)} + \text{H}_2 \text{ (g)} \rightarrow \text{Cu (s)} + \text{H}_2\text{O (g)}$
 (ii) Action of dilute sulphuric acid on sodium hydroxide-
 $\text{H}_2\text{SO}_4 \text{ (aq)} + 2\text{NaOH (aq)} \rightarrow \text{Na}_2\text{SO}_4 \text{ (aq)} + 2\text{H}_2\text{O (l)}$
 (iii) Action of dilute sulphuric acid on zinc sulphide-
 $\text{ZnS} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2\text{S} \uparrow$
 (iv) Ammonium hydroxide is added to ferrous sulphate solution –
 $\text{FeSO}_4 + 2\text{NH}_4\text{OH} \rightarrow (\text{NH}_4)_2\text{SO}_4 + \text{Fe}(\text{OH})_2$

(v) Chlorine gas is reacted with ethene :



(d) (i) Concentrated nitric acid is reacted with sulphur to give reddish brown nitrogen oxide gas.

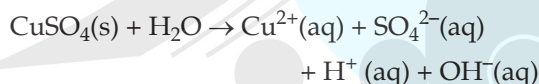


(ii) When ammonia gas is passed over heated copper (II) oxide, reddish brown copper metal is obtained and black CuO is used up.

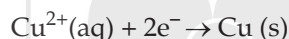


(iii) Copper sulphate solution is electrolysed using copper electrodes and the cathode increases in size due to deposition of copper metal, whereas the copper anode gets thin due to loss of copper metal into the solution as Cu^{2+} ions.

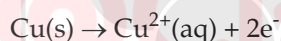
The electrolytic solution contains following ions-



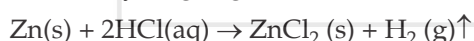
At cathode-



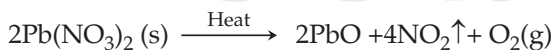
At anode made up of copper -



(iv) A small piece of zinc is added to dilute hydrochloric acid to give bubbles in solution due to evolution of hydrogen gas.



(v) Lead nitrate is heated strongly in a test tube to give a cracking sound and a reddish brown gas (NO_2).



Reddish brown gas is evolved.

(e) (i) 1. The number of moles in 12 g of oxygen gas can be calculated as below-

Given atomic mass of oxygen is 16 g,

Hence molar mass of O_2 gas = $16 \times 2 = 32$ g

That is, 32 g oxygen gas has one molecule of O_2 molecules.

Therefore, 12 g of oxygen gas would contain = $(1/32) \times 12 = 0.375$ moles

2. The weight of 10^{22} atoms of carbon can be calculated as follows -

Given - atomic weight of carbon = 12, and Avogadro's number = 6.023×10^{23}

Weight of one mole of carbon is 12 g,

Weight of 6.023×10^{23} carbon atoms is 12 g

Hence, weight of 10^{22} carbon atoms is $(12 \text{ g} / 6.023 \times 10^{23}) \times 10^{22} = 0.199 \approx 0.2$ g

(ii) Empirical formula can be obtained by dividing the number of atoms in molecule by the smallest number in the molecular formula -

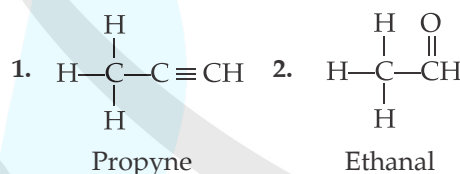
Given molecular formula - $\text{C}_6\text{H}_{18}\text{O}_3$

Smallest number in formula is 3

Dividing all the atoms by 3,

Empirical formula comes to be - $\text{C}_2\text{H}_6\text{O}$

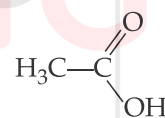
(f) (i) IUPAC name-



(ii) Special feature of ethyne structure is that ethyne (C_2H_2) contains a triple bond between the two carbon atoms and it is linear in shape due to sp hybridisation in carbon atoms.

(iii) The saturated hydrocarbon containing two carbon atoms is Ethane, C_2H_6 .

(iv) The structural formula of acetic acid is -



Ethanoic acid (acetic acid)

(g) (i) The formula that represents the simplest ratio of various elements present in one molecule of a compound is known as **Empirical formula**.

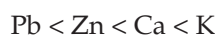
(ii) The substance that releases hydronium ion as the only positive ion when dissolved in water is **protic acid**.

(iii) The tendency of an atom to attract electrons towards itself when combined in a covalent compound is known as **electronegativity**.

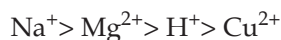
(iv) The process by which certain ores, specially carbonates, are converted to oxides in absence of air is known as **calcination**.

(v) The covalent bond in which the electrons are shared equally between the combining atoms is known as **Non-polar covalent bond**.

- (h) (i) The given elements can be arranged in increasing order of reactivity as follows –



- (ii) In the order of preferential discharge at the cathode –



- (iii) In the decreasing order of their ionization potential–



- (iv) In the increasing order of electron affinity –



- (v) In the increasing order of molecular weight –

Methane (CH_4) < ethyne (C_2H_2) < ethene (C_2H_4) < ethane (C_2H_6)

SECTION-II

Answers 2.

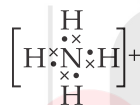
- (a) (i) Electron dot structure of nitrogen molecule –



- (ii) Electron dot structure of Sodium chloride –



- (iii) Electron dot structure of Ammonium ion –



- (b) (i) Solution C would have no effect on litmus solution as its pH is 7 and hence it is neutral.

- (ii) Solution B would liberate CO_2 when reacted with sodium carbonate as it is acidic solution and has pH 2.

- (iii) Solution A would turn red litmus solution blue as it is basic in nature and has pH 12.

- (c) (i) A would form electrovalent compound with G.

- (ii) B ion would travel to cathode during electrolysis.

- (iii) E has valency of 2.

- (iv) F is an inert gas.

Answers 3.

- (a) (i) The particles present in strong electrolyte are molecules which easily and completely dissociate into ions. Example: Strong electrolyte such as NaCl which dissociates strongly into Na^+ and Cl^- ions.

- (ii) The particles present in non-electrolyte are molecules which do not dissociate into ions. Example: Non-electrolyte such as urea. NH_2CONH_2 which do not dissociate.

- (iii) The particles present in weak electrolyte are both molecules and ions which dissociate into ions to a very less extent. Example: CH_3COOH which dissociates feebly into CH_3COO^- and H^+ ions.

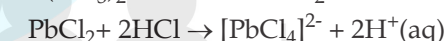
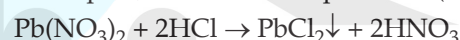
- (b) (i) Manganese dioxide reacts with concentrated hydrochloric acid to give chlorine gas, which is greenish yellow in colour, whereas copper (II) oxide reacts with concentrated hydrochloric acid to give CuCl_2 , but no chlorine gas is evolved.



- (ii) A reddish precipitate of Iron(III) hydroxide is obtained when ferric sulphate reacts with sodium hydroxide solution, whereas dirty green precipitate is obtained when ferrous sulphate is mixed with sodium hydroxide.

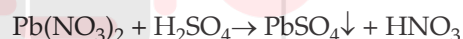


- (iii) Lead nitrate reacts with dilute HCl to form the insoluble salt lead chloride, which appears as the white precipitate. The insoluble lead chloride reacts with excess Cl^- ions (of HCl) to form a soluble complex, the tetrachloroplumbate(II) ion,



Soluble

- Lead nitrate solution reacts with H_2SO_4 to give lead sulphate precipitate, which does not dissolve further in sulphuric acid solution.

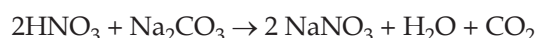


- (c) (i) (B) Lead chloride can be prepared by precipitation.

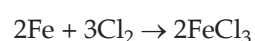


- (ii) (D) Iron (II) Sulphate can be prepared by substitution.

- (iii) (A) Sodium nitrate can be prepared by Neutralization.



- (iv) (C) Iron (III) chloride can be prepared by direct combination.



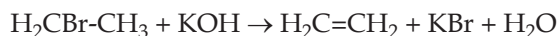
Answers 4.

- (a) (i) $\text{S} + 6\text{HNO}_3 \rightarrow \text{H}_2\text{SO}_4 + 6\text{NO}_2 + 2\text{H}_2\text{O}$

- (ii) $\text{C} + 2\text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 + 2\text{SO}_2 + 2\text{H}_2\text{O}$

- (iii) $3\text{Cu} + 8\text{HNO}_3 \rightarrow 3\text{Cu}(\text{NO}_3)_2 + 2\text{NO} + 4\text{H}_2\text{O}$

(b) (i) Ethene from bromoethane



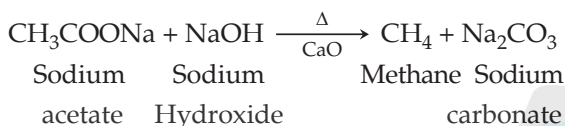
Bromoethane Ethene

(ii) Ethyne using calcium carbide



Calcium Carbide Ethyne

(iii) Methane from sodium acetate



(c) (i) The compound with three carbon atoms whose functional group is carboxyl-

Propanoic acid, $\text{CH}_3\text{CH}_2\text{COOH}$ (ii) The first homologue whose general formula is C_nH_{2n} is C_2H_4 that is Ethene.

(iii) The compound that reacts with acetic acid to form ethyl ethanoate is ethanol-

Ethanoic acid
(acetic acid)

Ethyl ethanoate

(iv) The compound formed by complete chlorination of ethyne is tetrachloroethane, $\text{C}_2\text{H}_2\text{Cl}_4$.**Answers 5.**(a) (i) The chemical formula of Bauxite is $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ [where, $0 < x < 1$](ii) The chemical formula of Cryolite is Na_3AlF_6 .(iii) The chemical formula of Sodium aluminate is NaAlO_2 .(b) (i) Cryolite (Na_3AlF_6) is mixed with alumina to bring down the melting point of electrolyte mixture and to increase its electrical conductivity.

(ii) The electrolytic mixture is sprinkled with coke to prevent the anode's oxidation by the oxygen evolved.

(iii) Aluminium is collected at cathode which is carbon lining covering the inside portion of vessel.

(c) (i) Duralumin – C. Aircraft body

(ii) Solder – A. Electrical fuse

(iii) Brass – D. Decorative articles

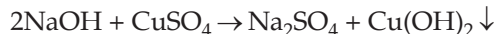
(iv) Stainless steel – B. Surgical instruments

Answers 6.

(a) (i) Platinum

(ii) Acetic acid or ethanoic acid CH_3COOH (iii) Dilute nitric acid or HNO_3

(b) (i) The given equation is

Molecular weight of NaOH, Sodium hydroxide = $23 + 16 + 1 = 40$ Molecular weight of Cu(OH)_2 , Copper hydroxide = $64 + 16 + 1 + 16 + 1 = 98$ $2 \times 40 = 80$ g of NaOH is used to precipitate 98 g of Cu(OH)_2 Hence, 200 g of NaOH will be used to precipitate $(98/80) 200$ g of $\text{Cu(OH)}_2 = 245$ g of Cu(OH)_2

So, 245 g of copper hydroxide would be prepared using 200 g of sodium hydroxide.

(ii) The precipitate of copper hydroxide is bluish green solid or Pale blue solid.

(c) Given : C=75.92%, H = 6.32% and N = 17.76%

Let us assume that the weight of compound is 100 g. So, in that 100 g C is 75.92 g, H is 6.32 g and N is 17.76 g.

Now, let's calculate the moles of each element present in the compound-

$$75.92 \text{ g C} \times (1 \text{ mol C} / 12 \text{ g C}) = 6.32$$

$$6.32 \text{ g H} \times (1 \text{ mol H} / 1 \text{ g H}) = 6.32$$

$$17.76 \text{ g N} \times (1 \text{ mol N} / 14 \text{ g N}) = 1.26$$

Next, dividing all the mole numbers by the smallest among them, which is 1.26. This division yields –

5 mol C, 5 mol H and 1 mol N

So, the compound has the empirical formula – $\text{C}_5\text{H}_5\text{N}$.

Now, we know that

$$\begin{aligned} \text{Molecular mass of a gas} &= 2 \times \text{vapour density of the gas} \\ &= 2 \times 39.5 \\ &= 79 \end{aligned}$$

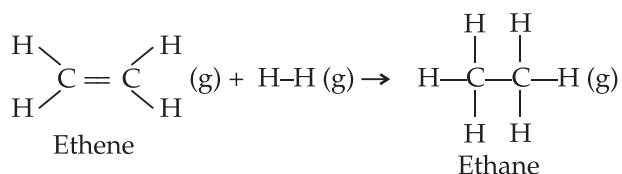
So, Molecular mass of the given compound is 79.

$$\text{Empirical formula mass} = (12 \times 5) + (1 \times 5) + (14 \times 1) = 79$$

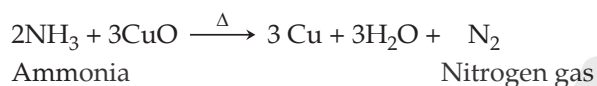
As, Empirical formula mass = Molecular mass

So, in this case Empirical formula = Molecular formula = $\text{C}_5\text{H}_5\text{N}$.**Answers 7.**(a) (i) Oxygen gas (O_2) is evolved when alumina undergoes electrolysis.

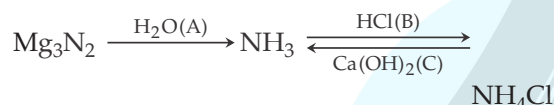
(ii) Ethane gas (C_2H_6) is evolved when ethene undergoes hydrogenation reaction.



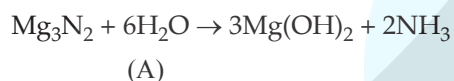
(iii) Nitrogen gas (N_2) is evolved when ammonia is treated with copper oxide.



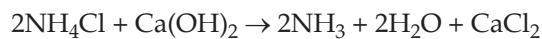
(b) The flow chart can be completed as follows-



The full reactions are as follows-



(B)



(C)

(c) Details of industrial processes-

| Name of the compound | Name of the process | Catalytic equation (with the catalyst) |
|----------------------|-----------------------|---|
| Ammonia | (i) Haber's Process | $ \begin{array}{c} \text{(ii) } \text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \\ \xrightleftharpoons[\text{K}_2\text{O} + \text{Al}_2\text{O}_3]{\text{Iron oxide}} \\ 2\text{NH}_3(\text{g}) \\ \text{Ammonia} \end{array} $ |
| Sulphuric acid | (iii) Contact process | $ \begin{array}{c} \text{(iv) } 2\text{SO}_2 + \text{O}_2(\text{g}) \\ \xrightarrow{\text{V}_2\text{O}_5} 2\text{SO}_3(\text{g}) \\ \xrightarrow{\text{H}_2\text{SO}_4} \text{H}_2\text{S}_2\text{O}_7 \\ \text{Oleum} \end{array} $ |

••

GURUKUL

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Choose the correct answer from the options given below : [5]

(i) The salt solution which does not react with ammonium hydroxide is :

- (A) Calcium nitrate (B) Zinc nitrate
(C) Lead nitrate (D) Copper nitrate

(ii) The organic compound which undergoes substitution reaction is :

- (A) C_2H_2 (B) C_2H_4
(C) $C_{10}H_{18}$ (D) C_2H_6

(iii) The electrolysis of acidified water is an example of :

- (A) Reduction (B) Oxidation
(C) Redox reaction (D) Synthesis

(iv) The IUPAC name of dimethyl ether is :

- (A) Ethoxy methane (B) Methoxy methane
(C) Methoxy ethane (D) Ethoxy ethane

(v) The catalyst used in the Contact Process is :

- (A) Copper (B) Iron
(C) Vanadium pentoxide (D) Manganese dioxide

- (b) Give **one word** or a **phrase** for the following statements : [5]

(i) The energy released when an electron is added to a neutral gaseous isolated atom to form a negatively charged ion.

(ii) Process of formation of ions from molecules which are not in ionic state.

(iii) The tendency of an element to form chains of identical atoms.

(iv) The property by which certain hydrated salts, when left exposed to atmosphere, lose their water of crystallization and crumble into powder.

(v) The process by which sulphide ore is concentrated.

- (c) Write a balanced chemical equation for each of the following : [5]

(i) Action of concentrated sulphuric acid on carbon.

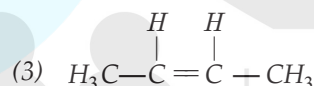
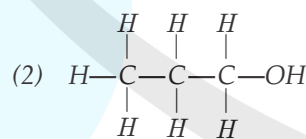
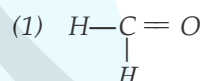
(ii) Reaction of sodium hydroxide solution with iron (III) chloride solution.

(iii) Action of heat on aluminium hydroxide.

(iv) Reaction of zinc with potassium hydroxide solution.

(v) Action of dilute hydrochloric acid on magnesium sulphite.

- (d) (i) Give the IUPAC name for each of the following :



(ii) Write the structural formula of the two isomers of butane.

- (e) State one relevant observation for each of the following reactions : [5]

(i) Lead nitrate solution is treated with sodium hydroxide solution drop wise till it is in excess.

(ii) At the anode, when molten lead bromide is electrolyzed using graphite electrodes.

(iii) Lead nitrate solution is mixed with dilute hydrochloric acid and heated.

(iv) Anhydrous calcium chloride is exposed to air for some time.

(v) Barium chloride solution is slowly added to sodium sulphate solution.

- (f) Give a reason for each of the following : [5]

(i) Ionic compounds have a high melting point.

(ii) Inert gases do not form ions.

(iii) Ionisation potential increases across a period, from left to right.

(iv) Alkali metals are good reducing agents.

(v) Conductivity of dilute hydrochloric acid is greater than that of acetic acid.

(g) Name the gas that is produced in each of the following cases : [5]

(i) Sulphur is oxidized by concentrated nitric acid.

(ii) Action of dilute hydrochloric acid on sodium sulphide.

(iii) Action of cold and dilute nitric acid on copper.

(iv) At the anode during the electrolysis of acidified water.

(v) Reaction of ethanol and sodium.

(h) Fill up the blanks with the correct choice given in brackets : [5]

(i) Ionic or electrovalent compounds do not conduct electricity in their _____ state.

(fused/solid)

(ii) Electrolysis of aqueous sodium chloride solution will form _____ at the cathode.

(hydrogen gas/sodium metal)

(iii) Dry hydrogen chloride gas can be collected by _____ displacement of air.

(downward/upward)

(iv) The most common ore of iron is _____.

(calamine/haematite)

(v) The salt prepared by the method of direct combination is _____

(iron (II) chloride/iron (III) chloride).

SECTION-II (40 Marks)

Attempt any four questions from this Section

Question 2.

(a) (i) What do you understand by a lone pair of electrons ? [3]

(ii) Draw the electron dot diagram of hydronium ion. (H = 1; O = 8)

(b) In Period 3 of the Periodic Table, element B is placed to the left of element A. On the basis of this information, choose the correct word from the brackets to complete the following statements : [3]

(i) The element B would have (lower/higher) metallic character than A.

(ii) The element A would probably have (lesser/higher) electron affinity than B.

(iii) The element A would have (greater/smaller) atomic size than B.

(c) Copy and complete the following table which refers to the conversion of ions to neutral particles : [4]

| Conversion | Ionic Equation | Oxidation/Reduction |
|-----------------------------------|----------------|---------------------|
| Chloride ion to chlorine molecule | (i) _____ | (ii) _____ |
| Lead (II) ion to lead | (iii) _____ | (iv) _____ |

Question 3.

(a) (i) Write the balanced chemical equation to prepare ammonia gas in the laboratory by using an alkali. [3]

(ii) State why concentrated sulphuric acid is not used for drying ammonia gas.

(iii) Why is ammonia gas not collected over water ?

(b) (i) Name the acid used for the preparation of hydrogen chloride gas in the laboratory. Why is this particular acid preferred to other acids ? [3]

(ii) Write the balanced chemical equation for the laboratory preparation of hydrogen chloride gas.

(c) For the preparation of hydrochloric acid in the laboratory : [2]

(i) Why is direct absorption of hydrogen chloride gas in water not feasible ?

(ii) What arrangement is done to dissolve hydrogen chloride gas in water ?

(d) For the electro-refining of copper : [2]

(i) What is the cathode made up of ?

(ii) Write the reaction that takes place at the anode.

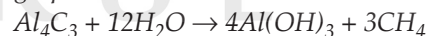
Question 4.

(a) The percentage composition of a gas is : [2]
Nitrogen 82.35%, Hydrogen 17.64%.

Find the empirical formula of the gas.

[N = 14, H = 1]

(b) Aluminium carbide reacts with water according to the following equation : [4]



(i) What mass of aluminium hydroxide is formed from 12 g of aluminium carbide ?

(ii) What volume of methane at S.T.P. is obtained from 12 g of aluminium carbide ?

[Relative molecular weight of $\text{Al}_4\text{C}_3 = 144$; $\text{Al}(\text{OH})_3 = 78$]

(c) (i) If 150 cc of gas A contains X molecules, how many molecules of gas B will be present in 75 cc of B ? [2]

The gases A and B are under the same conditions of temperature and pressure.

(ii) Name the law on which the above problem is based.

- (d) Name the main component of the following alloys : [2]
 (i) Brass
 (ii) Duralumin

Question 5.

- (a) Complete the following table which relates to the homologous series of hydrocarbons : [6]

| General formula | IUPAC name of the homologous series | Characteristic bond type | IUPAC name of the first member of the series |
|-----------------|-------------------------------------|--------------------------|--|
| C_nH_{2n-2} | (A) | (B) | (C) |
| C_nH_{2n+2} | (D) | (E) | (F) |

- (b) (i) Name the most common ore of the metal aluminium from which the metal is extracted. Write the chemical formula of the ore.
 (ii) Name the process by which impure ore of aluminium gets purified by using concentrated solution of an alkali.
 (iii) Write the equation for the formation of aluminium at the cathode during the electrolysis of alumina. [4]

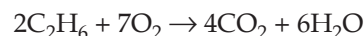
Question 6.

- (a) A compound X (having vinegar like smell) when treated with ethanol in the presence of the acid Z, gives a compound Y which has a fruity smell. The reaction is :



- (i) Identify Y and Z.
 (ii) Write the structural formula of X.
 (iii) Name the above reaction. [4]

- (b) Ethane burns in oxygen to form CO_2 and H_2O according to the equation :



If 1250 cc of oxygen is burnt with 300 cc of ethane.

Calculate :

- (i) the volume of CO_2 formed.
 (ii) the volume of unused O_2 . [4]
 (c) Three solutions P, Q and R have pH value of 3.5, 5.2 and 12.2 respectively. Which one of these is a :
 (i) Weak acid ?
 (ii) Strong alkali ? [2]

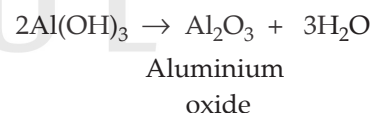
Question 7.

- (a) Give a chemical test to distinguish between the following pairs of chemicals :
 (i) Lead nitrate solution and zinc nitrate solution.
 (ii) Sodium chloride solution and sodium nitrate solution. [4]
 (b) Write a balanced equation for the preparation of each of the following salts :
 (i) Copper sulphate from copper carbonate.
 (ii) Zinc carbonate from zinc sulphate. [2]
 (c) (i) What is the type of salt formed when the reactants are heated at a suitable temperature for the preparation of nitric acid ?
 (ii) State why for the preparation of nitric acid, the complete apparatus is made up of glass. [2]
 (d) Which property of sulphuric acid is shown by the reaction of concentrated sulphuric acid with :
 (i) Ethanol ?
 (ii) Carbon ? [2]

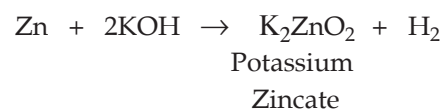
ANSWERS**SECTION-I****Answers 1.**

- (a) (i) (A) Calcium nitrate
 (ii) (D) C_2H_6 [As saturated hydrocarbons undergo substitution reaction.]
 (iii) (C) Redox reaction
 (iv) (B) Methoxy methane
 (v) (C) Vanadium pentoxide
 (b) (i) Electron affinity
 (ii) Ionization
 (iii) Catenation
 (iv) Efflorescence or Efflorescent
 (v) Froth floatation method
 (c) (i) $C + 2H_2SO_4 \text{ (conc.)} \rightarrow CO_2 + 2SO_2 + 2H_2O$
 (ii) $FeCl_3 + 3NaOH \rightarrow Fe(OH)_3 + 3NaCl$
 Iron (III) hydroxide

- (iii) Aluminium hydroxide on heating decomposes into aluminium oxide along with water.



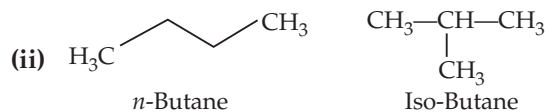
- (iv) Zinc reacts with potassium hydroxide solution to form potassium zincate



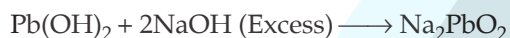
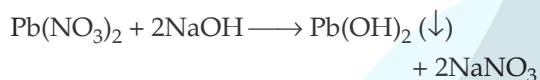
- (v) Magnesium sulphite reacts with dilute hydrochloric acid to give magnesium chloride :



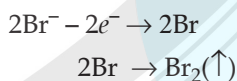
- (d) (i) (1) Methanal
(2) Propan-1-ol
(3) But-2-ene



- (e) (i) On dropwise addition of sodium hydroxide solution to lead nitrate solution it first gives a white precipitate and then on adding excess of sodium hydroxide solution, a clear solution is obtained due to formation of sodium plumbate (Na_2PbO_2) which is colourless and soluble.



- (ii) At the anode, when lead bromide is electrolyzed using graphite electrodes following reaction occurs at the anode during electrolysis and red brown vapours are evolved at anode.

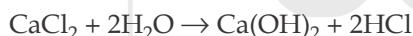


- (iii) Lead nitrate solution is mixed with dilute hydrochloric acid and heated to give lead chloride and nitric acid :

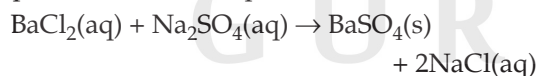


Lead chloride is a white precipitate solution in warm water but on heating colourless solution is observed.

- (iv) Anhydrous calcium chloride is exposed to air for some time and it absorbs moisture from air as it has a strong affinity for water.



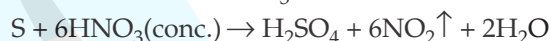
- (v) Barium chloride solution is slowly added to sodium sulphate solution to obtain white precipitate of barium sulphate :



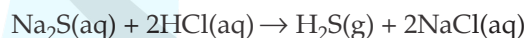
- (f) (i) Ionic compounds have high melting points because the ionic bonds are formed by transfer of electrons which are held by strong electrostatic force of attraction and require a great deal of energy to break the bond.
(ii) Inert gases do not form ions because their outermost shell is complete and they have a stable electronic configuration.
(iii) Ionisation potential increases across a period from left to right because size of atom decreases and effective nuclear charge increases per electron, hence making it difficult to remove electron.

- (iv) Alkali metals are good reducing agents because alkali metals have ns^1 outer electron configuration and they achieve the nearest stable configuration by losing one electron, hence they have a great tendency to loose electrons or get oxidized therefore, they are good reducing agents.
(v) Conductivity of dilute hydrochloric acid is greater than that of acetic acid because hydrochloric acid is a strong acid and it dissociates completely in aqueous solution to form H^+ and Cl^- ions (a higher concentration of ions). Acetic acid, on the other hand, is a weak acid and it partially dissociates forming H^+ and CH_3COO^- ions (concentration of ions is low).

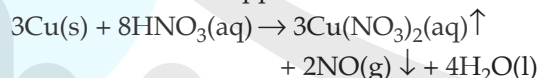
- (g) (i) H_2SO_4 and NO_2 are produced when sulphur reacts with conc. HNO_3 .



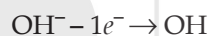
- (ii) Hydrogen sulphide (H_2S) gas is produced when dilute hydrochloric acid reacts with sodium sulphide.



- (iii) NO gas is evolved when cold and dilute nitric acid reacts with copper.



- (iv) Oxygen is evolved at the anode during the electrolysis of acidified water.



- (v) Hydrogen gas is produced during the reaction of ethanol and sodium.

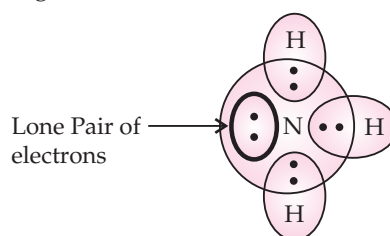


- (h) (i) solid
(ii) hydrogen gas
(iii) upward (HCl gas is heavy than air)
(iv) haematite
(v) iron (III) chloride

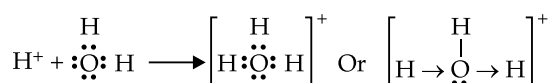
SECTION-II

Answers 2.

- (a) (i) A lone pair is an electron pair in the outermost shell of an atom that is not shared or bonded to another atom. Below is the example of lone pair on nitrogen atom of ammonia molecule (NH_3).



(ii) Electron dot diagram of hydronium ion :



(b) (i) The element **B** would have *higher* metallic character than element **A**.

(ii) The element **A** would have probably *higher* electron affinity than element **B**.

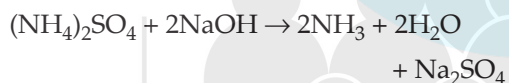
(iii) The element **A** would have *smaller* atomic size than element **B**.

(c)

| Conversion | Ionic Equation | Oxidation/Reduction |
|-----------------------------------|---|---------------------|
| Chloride ion to chlorine molecule | (i) $\text{Cl}^- - e^- \rightarrow \frac{1}{2} \text{Cl}_2(\text{g})$ | (ii) Oxidation |
| Lead(II) ion to lead | (iii) $\text{Pb}^{2+} + 2e^- \rightarrow \text{Pb}(\text{s})$ | (iv) Reduction |

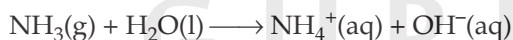
Answers 3.

(a) (i) Preparation of NH_3 gas using alkali can be done by reacting ammonium sulphate with sodium hydroxide.



(ii) Concentrated sulphuric acid is not used for drying ammonia gas because concentrated sulphuric acid (H_2SO_4) being acidic in nature reacts with basic ammonia gas to give ammonium sulphate $[(\text{NH}_4)_2\text{SO}_4]$.

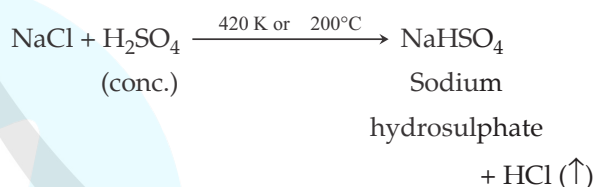
(iii) Ammonia gas is not collected over water because it has a high solubility in water and it dissolves in water to give a basic solution.



(b) (i) Conc. sulphuric acid is used for preparation of hydrogen chloride gas in laboratory. This is preferred over other acids because of the following reasons :

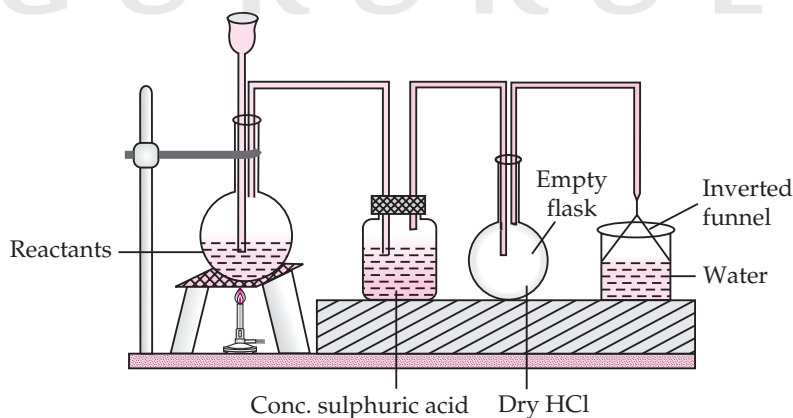
1. It has low volatility than HCl gas (so that the produced HCl gas is collected easily).
2. It has dehydrating properties, so the HCl gas produced can be effectively dehydrated to remove traces of water.

(ii) Laboratory preparation of hydrogen chloride gas can be done by heating NaCl with concentrated sulphuric acid :



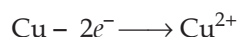
(c) (i) Hydrogen chloride gas is not directly absorbed in water because hydrogen chloride gas is highly soluble in water and causes back suction.

(ii) Hydrogen chloride gas is produced by reacting sodium chloride and sulphuric acid in a reaction vessel, the outlet from the vessel containing hydrogen chloride gas is put into another vessel containing sulphuric acid which helps to obtain dry hydrogen chloride gas. The dry gas then reaches to the vessel containing water through an empty vessel (this empty vessel is kept for accommodation of any back suction of water during absorption of hydrogen chloride gas in water). After travelling the empty vessel, hydrogen chloride gas is introduced to the vessel containing water through a pipe fitted with a funnel at the end and over the water vessel, this ensures maximum surface area for hydrochloric acid gas absorption in water.



(d) (i) For electro-refining of copper the cathode is made up of a strip of pure copper metal.

(ii) The reaction taking place at anode (made up of impure copper) is :



Answers 4.

(a) Nitrogen : 82.35% and Hydrogen : 17.64%

| Element | N | H |
|----------------|-------------------------|--------------------------|
| Percentage | 82.35 | 17.64 |
| Relative Ratio | $82.35/14 = 5.88$ | $17.64/1 = 17.64$ |
| Simple Ratio | $\frac{5.88}{5.88} = 1$ | $\frac{17.64}{5.88} = 3$ |

So, the empirical formula of the gas would be NH_3 .

(b) (i) $\text{Al}_4\text{C}_3 + 12\text{H}_2\text{O} \longrightarrow 4\text{Al}(\text{OH})_3 + 3\text{CH}_4$

One mole of Al_4C_3 gives 4 moles of $\text{Al}(\text{OH})_3$.

i.e., 144 g of Al_4C_3 gives 4×78 g of $\text{Al}(\text{OH})_3$

So, 12 g of Al_4C_3 gives $\frac{312 \times 12}{144}$ g of $\text{Al}(\text{OH})_3$
 $= 26$ g of $\text{Al}(\text{OH})_3$.

(ii) One mole of Al_4C_3 gives 3 moles of methane

12 g of Al_4C_3 gives $\frac{48 \times 12}{144}$ g of $\text{CH}_4 = 4$ g

Now, 16 g of methane has volume 22.4 L (at STP, the volume of one mole of any gas is 22.4 L)

4 g of methane would occupy 5.6 L.

So, 5.6 L of methane would be obtained from 12 g of Al_4C_3 .

(c) (i) There will be X/2 molecules of gas B in 75 cc volume.

(ii) The above problem is based on Avogadro's law, which states that :

'Equal volumes of all gases under similar conditions of temperature and pressure contain the same number of molecules.'

(d) (i) Main components of brass are copper and zinc.

(ii) Main components of duralumin are aluminium (95%), copper (4%), manganese (0.5%) and magnesium (0.5%).

Answers 5.

(a)

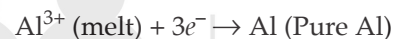
| General formula | IUPAC names of the homologous series | Characteristic bond type | IUPAC name of the first member of the series |
|-----------------------------|--------------------------------------|--|--|
| $\text{C}_n\text{H}_{2n-2}$ | (A) Alkyne | (B) Triple covalent bond $-\text{C} \equiv \text{C}-$ | (C) Ethyne |
| $\text{C}_n\text{H}_{2n+2}$ | (D) Alkane | (E) Single covalent bond $-\text{C}-\text{C}-$ | (F) Methane |

(b) (i) Most common ore of aluminium metal is bauxite, $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$.

(ii) The process by which impure ore of aluminium gets purified by using concentrated solution of an alkali is known as 'Baeyer's process'.



(iii) During electrolysis of alumina, the cathode reaction is :



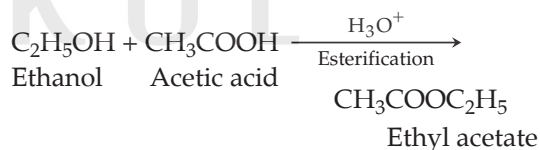
Answers 6.

(a) (i) Compound X is acetic acid (CH_3COOH) as it has vinegar like smell. Compound Y is an ester i.e., $\text{CH}_3\text{COOC}_2\text{H}_5$ ethyl ethanoate.

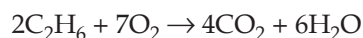
Z is a protic acid for example HCl (aq) or conc. H_2SO_4 .

(ii) The structural formula of X is CH_3COOH acetic acid.

(iii) The above reaction is known as 'Esterification' reaction.



(b) The given equation is :



(i) So, according to above equation, 2 V (volumes) of ethane reacts to give 4 V of carbon dioxide. So, 300 cc of ethane would give 600 cc of carbon dioxide.

(ii) Also, 2 V (volumes) of ethane reacts with 7 V of oxygen.

300 cc of ethane is 2 V, so oxygen required for 300 cc of ethane is

$$\frac{300 \times 7}{2} = 1050 \text{ cc}$$

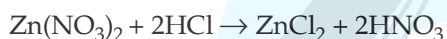
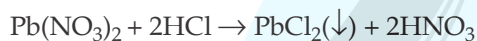
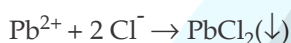
The remaining oxygen would be :

$$1250 \text{ cc} - 1050 \text{ cc} = 200 \text{ cc}$$

- (c) (i) Solution Q is a weak acid as its pH is 5.2
(ii) Solution R is a strong alkali as its pH is 12.2.

Answers 7.

- (a) (i) Add aqueous hydrochloric acid solution to the solution of lead nitrate and solution of zinc nitrate prepared separately. The solution of lead nitrate would give a white precipitate of PbCl_2 whereas there would be no precipitate formed with zinc nitrate solution.

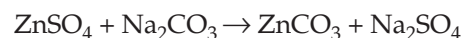


(ii) Add aqueous solution of silver nitrate (AgNO_3) to the solution of sodium chloride and solution of sodium nitrate prepared separately. The solution of sodium chloride would give a white precipitate of AgCl whereas there would be no precipitate only colourless solution is formed with sodium nitrate solution.

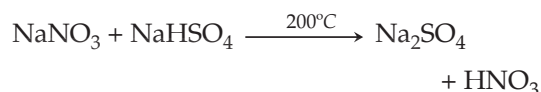
- (b) (i) Preparation of copper sulphate from copper carbonate can be done by reacting copper carbonate with sulphuric acid.



(ii) Zinc carbonate from zinc sulphate can be prepared by reacting zinc sulphate with sodium carbonate.

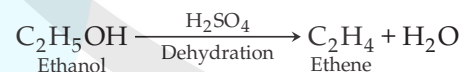


- (c) (i) Sodium sulphate is formed if the reactants (sulphuric acid and sodium nitrate) for the preparation of nitric acid are heated above 200°C . The sodium sulphate formed deposits as a hard crust and is difficult to remove.



(ii) All glass apparatus should be used while preparing nitric acid as the nitric acid vapours are highly corrosive and they corrode the cork or rubber fittings used in the apparatus.

- (d) (i) Reaction of concentrated sulphuric acid with ethanol leads to formation of ethene, which shows that it is dehydrating in nature.



(ii) Reaction of concentrated sulphuric acid with carbon shows its oxidizing nature, where it oxidizes carbon to carbon dioxide.



GURUKUL

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

(a) Fill in the blanks with the choices given in brackets.

(i) The energy required to remove an electron from a neutral isolated gaseous atom and convert it into a positively charged gaseous ion is called _____.
(electron affinity, ionisation potential, electronegativity)

(ii) The compound that does not have a lone pair of electrons is _____.
(water, ammonia, carbon tetra chloride).

(iii) When a metallic oxide is dissolved in water, the solution formed has a high concentration of _____.
(H^+ , H_3O^+ , OH^-).

(iv) Potassium sulphite on reacting with hydrochloric acid releases _____ gas.
(Cl_2 , SO_2 , H_2S).

(v) The compound formed when ethene reacts with hydrogen is _____.
(CH_4 , C_2H_6 , C_3H_8).

(b) Choose the correct answer from the options given below :

(i) A chloride which forms a precipitate that is soluble in excess of ammonium hydroxide, is :

- (A) Calcium chloride (B) Ferrous chloride
(C) Ferric chloride (D) Copper chloride

(ii) If the molecular formula of an organic compound is $C_{10}H_{18}$ it is :

- (A) alkene (B) alkane
(C) alkyne (D) not a hydrocarbon

(iii) Which of the following is a common characteristic of a covalent compound ?

- (A) high melting point
(B) consists of molecules
(C) always soluble in water
(D) conducts electricity when it is in the molten state

(iv) To increase the pH value of neutral solution, we should add :

- (A) an acid (B) an acid salt
(C) an alkali (D) a salt

(v) Anhydrous iron (III) chloride is prepared by :

- (A) direct combination
(B) simple displacement
(C) decomposition
(D) neutralization

(c) Identify the substance underlined, in each of the following cases :

(i) Cation that does not form a precipitate with ammonium hydroxide but forms one with sodium hydroxide.

(ii) The electrolyte used for electroplating an article with silver.

(iii) The particles present in a liquid such as kerosene, that is a non-electrolyte.

(iv) An organic compound containing $-COOH$ functional group.

(v) A solid formed by reaction of two gases, one of which is acidic and the other basic in nature.

(d) Write a balanced chemical equation for each of the following :

(i) Action of cold and dilute nitric acid on copper.

(ii) Reaction of ammonia with heated copper oxide.

(iii) Preparation of methane from iodomethane.

(iv) Action of concentrated sulphuric acid on sulphur.

(v) Laboratory preparation of ammonia from ammonium chloride.

(e) State one relevant observation for each of the following reactions :

(i) Addition of ethyl alcohol to acetic acid in the presence of concentrated sulphuric acid.

(ii) Action of dilute hydrochloric acid on iron (II) sulphide.

(iii) Action of sodium hydroxide solution on ferrous sulphate solution.

(iv) Burning of ammonia in air.

(v) Action of concentrated sulphuric acid on hydrate copper sulphate.

(f) (i) Draw the structural formula for each of the following :

- 2, 3-dimethyl butane
- diethyl ether
- propanoic acid

(ii) From the list of terms given, choose the most appropriate term to match the given description.

(calcination, roasting, pulverisation, smelting).

1. Crushing of the ore into a fine powder.

2. Heating of the ore in the absence of air to a high temperature. [5]

(g) (i) Calculate the number of gram atoms in 4.6 grams of sodium (Na = 23).

(ii) Calculate the percentage of water of crystallization in $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

(H = 1, O = 16, S = 32, Cu = 64)

(iii) A compound of X and Y has the empirical formula XY_2 . Its vapour density is equal to its empirical formula weight. Determine its molecular formula. [5]

(h) Match the atomic number 2, 4, 8, 15 and 19 with each of the following :

(i) A solid non-metal belonging to the third period.

(ii) A metal of valency 1.

(iii) A gaseous element with valency 2.

(iv) An element belonging to Group 2.

(v) A rare gas. [5]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

(a) Arrange the following as per the instruction given in the brackets : [4]

(i) He, Ar, Ne (Increasing order of the number of electron shells)

(ii) Na, Li, K (Increasing Ionisation Energy)

(iii) F, Cl, Br (Increasing electronegativity)

(iv) Na, K, Li (Increasing atomic size)

(b) State the type of Bonding in the following molecules : [2]

(i) Water (ii) Calcium oxide

(c) Answer the following questions : [2]

(i) How will you distinguish between ammonium hydroxide and sodium hydroxide using copper sulphate solution ?

(ii) How will you distinguish between dilute hydrochloric acid and dilute sulphuric acid using lead nitrate solution ?

(d) Identify the salts P and Q from the observations given below : [2]

(i) On performing the flame test salt P produces a lilac coloured flame and its solution gives a white precipitate with silver nitrate solution, which is soluble in Ammonium hydroxide solution.

(ii) When dilute HCl is added to salt Q, a brisk effervescence is produced and the gas turns lime water milky.

When NH_4OH solution is added to the above mixture (after adding dilute HCl), it produces a white precipitate which is soluble in excess NH_4OH solution.

Question 3.

(a) Draw an electron dot diagram to show the formation of each of the following compounds : [4]

(i) Methane

(ii) Magnesium Chloride

[H = 1, C = 6, Mg = 12, Cl = 17]

(b) State the observations at the anode and at the cathode during the electrolysis of : [4]

(i) fused lead bromide using graphite electrodes.

(ii) copper sulphate solution using copper electrodes.

(c) Select the ion in each case, that would get selectively discharged from the aqueous mixture of the ions listed below : [2]

(i) SO_4^{2-} , NO_3^- and OH^-

(ii) Pb^{2+} , Ag^+ and Cu^{2+}

Question 4.

(a) Certain blank spaces are left in the following table and these are labelled as A, B, C, D and E. Identify each of them : [5]

| | Lab preparation of | Reactants used | Products formed | Drying agent | Method of collection |
|------|--------------------|---------------------------------------|--------------------------------------|-------------------------------|----------------------|
| (i) | HCl gas | $\text{NaCl} + \text{H}_2\text{SO}_4$ | A | conc. H_2SO_4 | B |
| (ii) | NH_3 gas | C | Mg (OH) ₂ + NH_3 | D | E |

(b) Write balanced chemical equations to show : [3]

(i) The oxidizing action of conc. Sulphuric acid on Carbon.

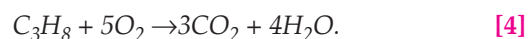
(ii) The behavior of H_2SO_4 as an acid when it reacts with magnesium.

(iii) The dehydrating property of conc. Sulphuric acid with sugar.

(c) Write balanced chemical equations to show how SO_3 is converted to sulphuric acid in the contact process. [2]

Question 5.

(a) (i) Propane burns in air according to the following equation :



What volume of propane is consumed on using 1000 cm^3 of air, considering only 20% of air contains oxygen ?

- (ii) The mass of 11.2 litre of a certain gas at S.T.P. is 24 g. Find the gram molecular mass of the gas.
- (b) A gas cylinder can hold 1 kg of hydrogen at room temperature and pressure : [4]
- (i) Find the number of moles of hydrogen present.
- (ii) What weight of CO_2 can the cylinder hold under similar conditions of temperature and pressure ? ($H = 1, C = 12, O = 16$)
- (iii) If the number of molecules of hydrogen in the cylinder is X, calculate the number of CO_2 molecules in the cylinder under the same conditions of temperature and pressure.
- (iv) State the law that helped you to arrive at the above result.
- (c) Write a balanced chemical equation for the preparation of each of the following salts : [2]
- (i) Copper carbonate
- (ii) Ammonium sulphate crystals
- Question 6.**
- (a) Give a balanced chemical equation for each of the following : [4]
- (i) Action of conc. nitric acid on sulphur.
- (ii) Catalytic oxidation of ammonia.
- (iii) Laboratory preparation of nitric acid.
- (iv) Reaction of ammonia with nitric acid.
- (b) Identify the term or substance based on the descriptions given below : [4]
- (i) Ice like crystals formed on cooling an organic acid sufficiently.
- (ii) Hydrocarbon containing a triple bond used for welding purposes.
- (iii) The property by virtue of which the compound has the same molecular formula but different structural formulae.
- (iv) The compound formed where two alkyl groups are linked by $\begin{array}{c} \text{O} \\ || \\ -\text{C}- \end{array}$ group.
- (c) Give a balanced chemical equation for each of the following : [3]
- (i) Preparation of ethane from sodium propionate.
- (ii) Action of alcoholic KOH on bromoethane.
- Question 7.**
- (a) Name the following : [4]
- (i) The process of coating of iron with zinc.
- (ii) An alloy of lead and tin that is used in electrical circuits.
- (iii) An ore of zinc containing its sulphide.
- (iv) A metal oxide that can be reduced by hydrogen.
- (b) Answer the following questions with respect to the electrolytic process in the extraction of aluminium : [3]
- (i) Identify the components of the electrolyte other than pure alumina and the role played by each.
- (ii) Explain why powdered coke is sprinkled over the electrolytic mixture.
- (c) Complete the following by selecting the correct option from the choices given : [3]
- (i) The metal which does not react with water or dilute H_2SO_4 but reacts with concentrated H_2SO_4 is———. (Al/Cu/Zn/Fe)
- (ii) The metal whose oxide, which is amphoteric, is reduced to metal by carbon reduction———. (Fe/Mg/Pb/Al)
- (iii) The divalent metal whose oxide is reduced to metal by electrolysis of its fused salt is———. (Al/Na/Mg/K)

ANSWERS

SECTION-I

Answer 1.

- (a) (i) The energy required to remove an electron from a neutral isolated gaseous atom and convert it into a positively charged gaseous ion is called **ionisation potential**.
- (ii) The compound that does not have a lone pair of electron is **carbon tetrachloride**.
- (iii) When a metallic oxide is dissolved in water, the solution formed has a high concentration of OH^- ions.
- (iv) Potassium sulphite on reacting with hydrochloric acid releases SO_2 gas.
- (v) The compound formed when ethene reacts with hydrogen is C_2H_6 .
- (b) (i) (D) Copper chloride
- (ii) (C) Alkyne
- (iii) (B) Consists of molecules
- (iv) (C) An alkali
- (v) (A) Direct combination
- (c) (i) **Cation** that does not form a precipitate with ammonium hydroxide but forms one with sodium hydroxide — Ca^{2+}

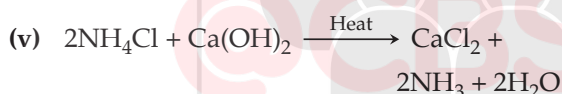
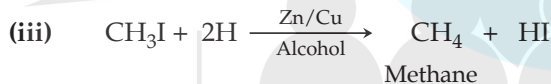
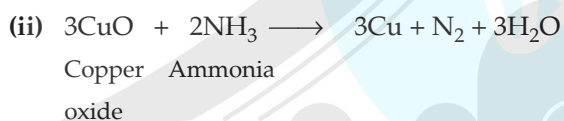
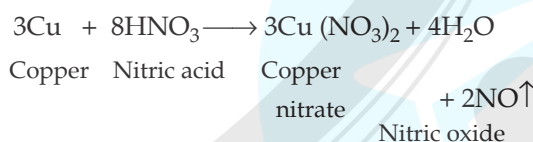
(ii) The **electrolyte** used for electroplating an article with silver — **Solution of sodium argentocyanide i.e., Na[Ag(CN)₂]**

(iii) The **particles** present in a liquid such as kerosene, that is a non-electrolyte — **Free Molecules**

(iv) An **organic compound** containing — COOH functional group — **Carboxylic acid**

(v) A **solid** formed by reaction of two gases, one of which is acidic and the other basic in nature — **Ammonium chloride (NH₄Cl)** (formed by combining vapours of ammonia with hydrogen chloride gas)

(d) (i) Copper reacts with cold and dilute nitric acid to form copper nitrate, water and nitric oxide.



(e) (i) Ethanoic or acetic acid reacts with ethanol in the presence of concentrated sulphuric acid to produce the ester, ethyl ethanoate having a fruity smell and turns blue litmus paper red.

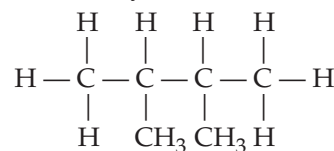
(ii) Iron sulphide reacts with hydrochloric acid, releasing a highly toxic gas hydrogen sulphide having rotten egg smell and turns blue litmus paper red.

(iii) A dirty green precipitate of ferrous hydroxide is formed which is insoluble in excess of NaOH solution.

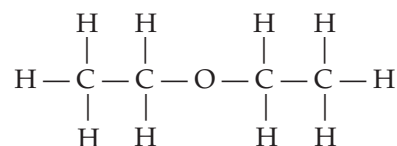
(iv) Ammonia burns in air to form greenish-yellow vapours of nitric oxide.

(v) The blue crystals are changed into white powder as water is removed. Concentrated sulphuric acid takes away the water molecules and the copper sulphate becomes anhydrous.

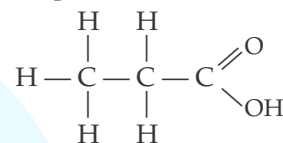
(f) (i) 1. 2, 3-dimethyl butane



2. Diethyl ether



3. Propanoic acid



(ii) 1. Pulverisation

2. Calcination

(g) (i) 1 g atom is the mass of 1 mole of monoatomic element.

1 mole of Na is equal to 23 g atom of Na.

23 g of Na = 1 mole of Na

4.6 g of Na = $4.6 \times 1/23 = 0.2$ mole

So, number of gram atoms

$$= 0.2 \times 6.022 \times 10^{23} \text{ atoms}$$

$$= 1.204 \times 10^{23} \text{ atoms}$$

(ii) Molar mass of CuSO₄·5H₂O

$$= [64 + 32 + (16 \times 4) + 5(2 \times 1 + 16)]$$

$$= 250$$

Mass of water of crystallisation

$$= 5(2 \times 1 + 16) = 90$$

∴ Percentage of water of crystallisation

$$= \frac{90}{250} \times 100 = 36\%$$

(iii) Molecular weight = 2 × Vapour density

$$= 2 \times \text{Empirical formula weight}$$

(Given, Vapour density

$$= \text{empirical formula weight})$$

Also,

Molecular Weight = Empirical formula

$$\text{weight} \times n$$

Therefore, 2 × Empirical formula weight

$$= \text{Empirical formula weight} \times n$$

$$n = 2$$

Now, Molecular Formula

$$= (\text{Empirical Formula}) \times n$$

$$= (\text{XY}_2)_2$$

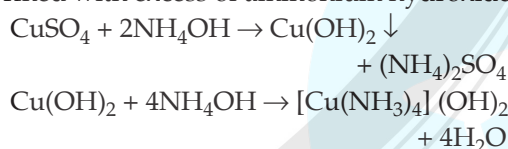
$$= \text{X}_2\text{Y}_4$$

- (h) (i) $Z = 15$ (ii) $Z = 19$
 (iii) $Z = 8$ (iv) $Z = 4$
 (v) $Z = 2$

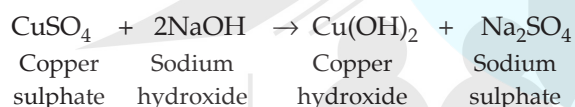
SECTION-II

Answer 2.

- (a) (i) $\text{He} < \text{Ne} < \text{Ar}$ (ii) $\text{K} < \text{Na} < \text{Li}$
 (iii) $\text{Br} < \text{Cl} < \text{F}$ (iv) $\text{Li} < \text{Na} < \text{K}$
 (b) (i) Covalent bonding
 (ii) Ionic or electrovalent bonding
 (c) (i) When ammonium hydroxide solution is added drop by drop to copper sulphate solution, a pale blue or bluish white precipitate is formed which is soluble in excess of ammonium hydroxide and a deep blue or inky blue solution is formed with excess of ammonium hydroxide.

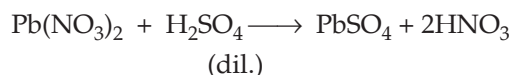
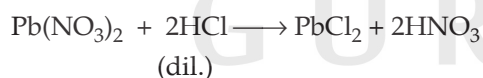


Copper solution forms a blue precipitate with sodium hydroxide solution. It is insoluble in excess of NaOH.



(ii) On adding lead nitrate to both acids, we will get a white precipitate. On heating the solution, the one whose precipitate will redissolve will be dil. HCl and the one with insoluble precipitate will be dil. H_2SO_4 .

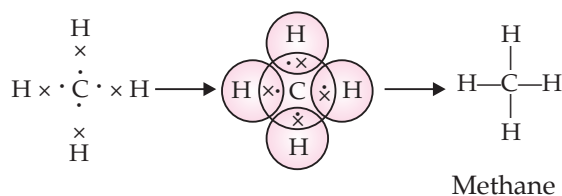
Actually on adding lead nitrate to HCl, PbCl_2 precipitates out and on heating the solution it redissolves. But in case of H_2SO_4 , PbSO_4 is formed which is insoluble even on heating it and white in colour.



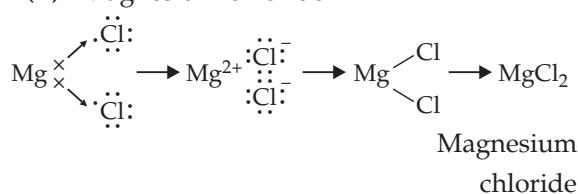
- (d) (i) Potassium chloride (ii) Zinc carbonate

Answer 3.

- (a) (i)



- (ii) Magnesium chloride



- (b) (i) At anode, the Br^- ion gives up electrons. Red brown bromine gas bubbles can be seen. At cathode, the Pb^{2+} ion accepts electrons. The electrolysis of lead bromide using graphite electrodes produces lead metal at the cathode as silvery grey deposits and bromine gas at the anode.



(ii) At the cathode, Cu^{2+} ions are discharged and deposited on the cathode. At the anode, however, copper ions go into solution in preference to the discharge of either OH^- or SO_4^{2-} ions. As the electrolysis continues, the cathode increases in thickness by reddish brown deposit of copper while the anode slowly dissolves away.

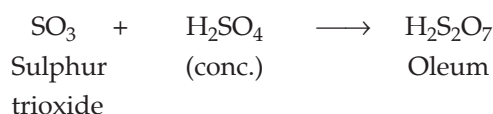


- (c) (i) OH^- ions (ii) Ag^+ ions

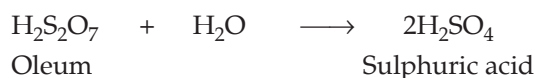
Answer 4.

- (a) (i) (A) $\text{NaHSO}_4 + \text{HCl}$
 (B) Upward displacement of air
 (ii) (C) $\text{Mg}_3\text{N}_2 + \text{H}_2\text{O}$
 (D) CaO
 (E) Downward displacement of air.
 (b) (i) $\text{C} + 2\text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 \uparrow + 2\text{SO}_2 \uparrow + 2\text{H}_2\text{O}$
 (ii) $\text{Mg} + \text{H}_2\text{SO}_4 \rightarrow \text{MgSO}_4 + \text{H}_2 \uparrow$
 (iii) $\text{C}_{12}\text{H}_{22}\text{O}_{11} \xrightarrow{\text{conc. H}_2\text{SO}_4} 12\text{C} + 11\text{H}_2\text{O}$
 (Cane sugar)

- (c) 1. Conversion of sulphur trioxide into sulphuric acid :



2. Dilution of oleum :



Answer 5.

- (a) (i) For every 5 moles of O_2 , 1 mole of propane is burnt.

20% of 1000 = $20 \times 1000 / 100 = 200 \text{ cm}^3$ of O_2 .

$$\left(\frac{1}{5} \times 200\right) \text{ cm}^3 = 40 \text{ cm}^3$$

Thus, volume of propane = 40 cm^3

- (ii) Mass of gas = 24 g

Volume of gas = 11.6 litre

22.4 L of gas at STP = 1 mole

11.2 L of gas at STP = $11.2 / 22.4 = 0.5$ moles

Mass of 0.5 moles of gas = 24 g

Mass of 1 mole of gas or molar mass = $24 / 0.5$
= 48 g

- (b) (i) 1 kg = 1000 gram
2 g of hydrogen molecules = 1 mole
1 g of hydrogen molecules = $1/2$ mole
1000 g of hydrogen molecules = $1/2 \times 1000$
= 500 moles

- (ii) Molecular weight of carbon dioxide = 44 g

$$\text{Vapour density} = \frac{44}{2} = 22$$

Now, Vapour density

$$= \frac{\text{Weight of carbon dioxide at certain temperature}}{\text{Weight of same volume of hydrogen at same temperature and pressure}}$$

$$22 = \text{Weight of carbon dioxide} / 1 \text{ kg}$$

$$\text{Weight of carbon dioxide} = 22 \text{ kg}$$

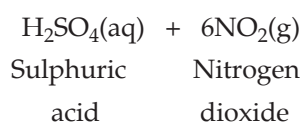
- (iii) If the number of molecules of hydrogen is X, then number of molecules of carbon dioxide will also be X.

(iv) This is according to the *Avogadro's Law* which states that "Equal volumes of all gases under similar conditions of temperature and pressure contain equal number of molecules."

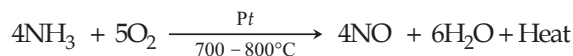
- (c) (i) $\text{CuCl}_2 + \text{NaCO}_3 \longrightarrow \text{CuCO}_3 + 2\text{NaCl}$
(ii) $2\text{NH}_4\text{OH} + \text{H}_2\text{SO}_4 \longrightarrow (\text{NH}_4)_2\text{SO}_4 + 2\text{H}_2\text{O}$

Answer 6.

- (a) (i) $\text{S(s)} + 6\text{HNO}_3(\text{aq}) \rightarrow 2\text{H}_2\text{O(l)} +$
Sulphur Nitric acid Water

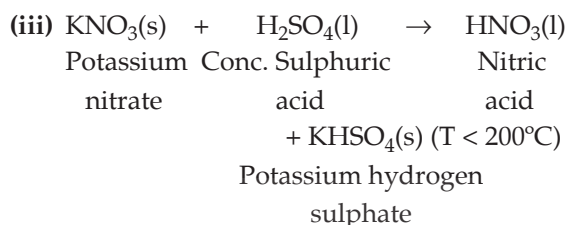


- (ii) The equation for catalytic oxidation of ammonia is :

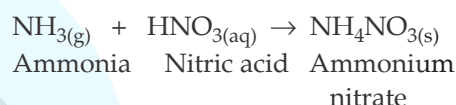


Ammonia Nitric oxide

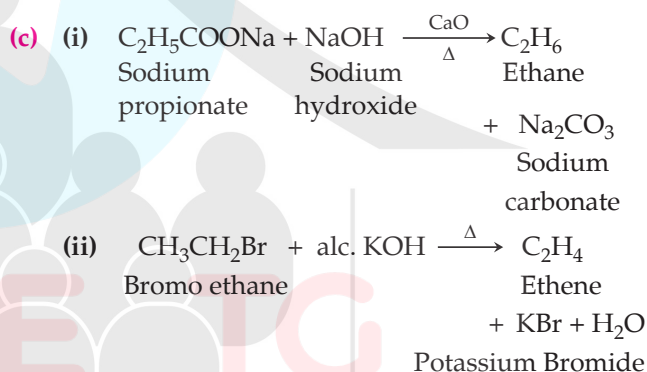
Catalyst is a wire mesh consisting of platinum and rhodium.



- (iv) Ammonia reacts with nitric acid to produce ammonium nitrate



- (b) (i) Glacial acetic acid
(ii) Acetylene or ethyne
(iii) Isomerism (iv) Ketone

**Answer 7.**

- (a) (i) Galvanization
(ii) Solder or fuse metal
(iii) Zinc blende
(iv) Copper oxide
- (b) (i) The electrolyte is a solution of aluminium oxide (Al_2O_3) dissolved in cryolite (sodium hexafluoroaluminate(III), Na_3AlF_6). The use of cryolite reduces the melting point of alumina and fluorspar increases the conductivity of solution.
(ii) To prevent the heat loss due to radiation from molten electrolyte. It also prevents carbon anode from burning in air.
- (c) (i) The metal which does not react with water or dilute H_2SO_4 but reacts with concentrated H_2SO_4 is **Cu**.
(ii) The metal whose oxide, which is amphoteric, is reduced to metal by carbon reduction **Pb**.
(iii) The divalent metal whose oxide is reduced to metal by electrolysis of its fused salt is **Mg**.

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

(a) Fill in the blanks with the choices given in brackets. [5]

(i) Metals are good _____ .
(oxidizing agents/
reducing agents)
because they are electron _____ .
(acceptors/donors).

(ii) Electrovalent compounds have _____ (high/
low) melting points.

(iii) Higher the pH value of a solution, the more _____ (acidic/alkaline) it is.

(iv) _____ (AgCl/PbCl₂), a white precipitate is soluble in excess NH₄OH.

(v) Conversion of ethene to ethane is an example of _____ .
(hydration/hydrogenation)

(b) Choose the correct answer from the options given below : [5]

(i) An element with the atomic number 19 will most likely combine chemically with the element whose atomic number is :

- (A) 17 (B) 11
(C) 18 (D) 20

(ii) The ratio between the number of molecules in 2 g of hydrogen and 32 g of oxygen is :

- (A) 1 : 2
(B) 1 : 0.01
(C) 1 : 1
(D) 0.01 : 1 [Given that H = 1, O = 16]

(iii) The two main metals in bronze are :

- (A) Copper and zinc (B) Copper and lead
(C) Copper and nickel (D) Copper and tin

(iv) The particles present in strong electrolytes are :

- (A) only molecules (B) mainly ions
(C) ions and molecules (D) only atoms

(v) The aim of the fountain experiment is to prove that :

- (A) HCl turns blue litmus red
(B) HCl is denser than air
(C) HCl is highly soluble in water
(D) HCl fumes in moist air

(c) Write balanced chemical equations for each of the following : [5]

(i) Action of warm water on AlN.

(ii) Action of hot and concentrated nitric acid on copper.

(iii) Action of hydrochloric acid on sodium bicarbonate.

(iv) Action of dilute sulphuric acid on sodium sulphite.

(v) Preparation of ethanol from ethyl chloride.

(d) State your observations when : [5]

(i) Dilute hydrochloric acid is added to lead nitrate solution and the mixture is heated.

(ii) Barium chloride solution is mixed with sodium sulphate solution.

(iii) Concentrated sulphuric acid is added to sugar crystals.

(iv) Dilute hydrochloric acid is added to copper carbonate.

(v) Dilute hydrochloric acid is added to sodium thiosulphate.

(e) Identify the term/substance in each of the following : [5]

(i) The tendency of an atom to attract electrons to itself when combined in a compound.

(ii) The method used to separate ore from gangue by preferential wetting.

(iii) The catalyst used in the conversion of ethyne to ethane.

(iv) The type of reactions alkenes undergo.

(v) The electrons present in the outermost shell of an atom.

(f) (i) A gas of mass 32 gm has a volume of 20 litre at S.T.P. Calculate the gram molecular weight of the gas. [5]

(ii) How much calcium oxide is formed when 82 g of calcium nitrate is heated ? Also find the volume of nitrogen dioxide evolved :

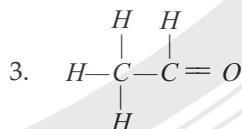
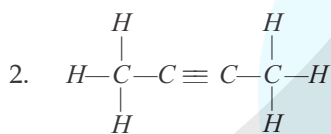
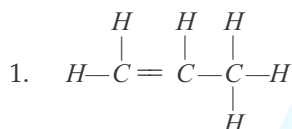


(Ca = 40, N = 14, O = 16)

- (g) Match the salts given in column I with their method of preparation given in column II : [5]

| Column I | Column II |
|--|-------------------------|
| (i) $\text{Pb}(\text{NO}_3)_2$ from PbO | (A) Simple displacement |
| (ii) MgCl_2 from Mg | (B) Titration |
| (iii) FeCl_3 from Fe | (C) Neutralization |
| (iv) NaNO_3 from NaOH | (D) Precipitation |
| (v) ZnCO_3 from ZnSO_4 | (E) Combination |

- (h) (i) Write the IUPAC names of each of the following : [5]



(ii) Rewrite the following sentences by using the correct symbol > (greater than) or < (less than) in the blanks given :

- The ionization potential of potassium is _____ that of sodium.
- The electronegativity of iodine is _____ that of chlorine.

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

- (a) Use the letters only written in the Periodic Table given below to answer the questions that follow : [4]

| | I | II | GROUPS | | | | | | | | | | III | IV | V | VI | VII | 0 |
|---------|---|----|--------|--|--|--|--|--|--|--|--|--|-----|----|---|----|-----|---|
| PERIODS | 1 | | | | | | | | | | | | | | | | | |
| 2 | Q | | | | | | | | | | | | E | G | J | Z | M | |
| 3 | R | | | | | | | | | | | | | | | | | |
| 4 | T | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | |

- State the number of valence electrons in atom J.
- Which element shown forms ions with a single negative charge ?
- Which metallic element is more reactive than R ?
- Which element has its electrons arranged in four shells ?

- (b) Fill in the blanks by selecting the correct word from the brackets : [2]

(i) If an element has a low ionization energy then it is likely to be _____ (metallic/non-metallic).

(ii) If an element has seven electrons in its outermost shell then it is likely to have the _____ (largest/smallest) atomic size among all the elements in the same period.

- (c) The following table shows the electronic configuration of the elements W, X, Y, Z :

| Element | W | X | Y | Z |
|---------------------------|---------|---------|------|---|
| Electronic configurations | 2, 8, 1 | 2, 8, 7 | 2, 5 | 1 |

Answer the following questions based on the table above :

- (i) What type of Bond is formed between : [2]

- W and X
- Y and Z

(ii) What is the formula of the compound formed between : [2]

- X and Z
- W and X

Question 3.

- (a) Write a balanced chemical equation for each of the following : [3]

(i) Burning of ethane in plentiful supply of air.

(ii) Action of water on calcium carbide.

(iii) Heating of ethanol at 170°C in the presence of conc. sulphuric acid.

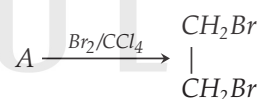
- (b) Give the structural formulae of each of the following : [3]

(i) 2-methyl propane

(ii) Ethanoic acid

(iii) Butan-2-ol

- (c) Equation for the reaction when compound A is bubbled through bromine dissolved in carbon tetrachloride is as follows : [2]



(i) Draw the structure of A.

(ii) State your observation during this reaction.

- (d) Fill in the blanks using the appropriate words given below : [2]

(Sulphur dioxide, Nitrogen dioxide, Nitric oxide, Sulphuric acid)

(i) Cold, dilute nitric acid reacts with copper to give _____.

(ii) Hot, concentrated nitric acid reacts with sulphur to form _____.

Question 4.

- (a) Identify the gas evolved and give the chemical test in each of the following cases : [2]
 (i) Dilute hydrochloric acid reacts with sodium sulphite.
 (ii) Dilute hydrochloric acid reacts with iron (II) sulphide.
- (b) State your observations when ammonium hydroxide solution is added drop by drop and then in excess to each of the following solutions : [2]
 (i) Copper sulphate solution.
 (ii) Zinc sulphate solution.
- (c) Write equations for the reactions taking place at the two electrodes (mentioning clearly the name of the electrode) during the electrolysis of : [4]
 (i) Acidified copper sulphate solution with copper electrodes.
 (ii) Molten lead bromide with inert electrodes.
- (d) (i) Name the product formed at the anode during the electrolysis of acidified water using platinum electrodes. [2]
 (ii) Name the metallic ions that should be present in the electrolyte when an article made of copper is to be electroplated with silver. [2]

Question 5.

- (a) A gas cylinder contains 12×10^{24} molecules of oxygen gas. If Avogadro's number is 6×10^{23} . Calculate : [2]
 (i) The mass of oxygen present in the cylinder.
 (ii) The volume of oxygen at S.T.P. present in the cylinder. [O = 16]
- (b) A gaseous hydrocarbon contains 82.76% of carbon. Given that its vapour density is 29, find its molecular formula. [C = 12, H = 1] [3]
- (c) The equation $4\text{NH}_3 + 5\text{O}_2 \longrightarrow 4\text{NO} + 6\text{H}_2\text{O}$, represents the catalytic oxidation of ammonia. If 100 cm^3 of ammonia is used, calculate the volume of oxygen required to oxidise the ammonia completely. [3]
- (d) By drawing an electron dot diagram show the formation of Ammonium Ion [Atomic No. : N = 7 and H = 1] [2]

Question 6.

- (a) Name the gas evolved when the following mixtures are heated : [2]
 (i) Calcium hydroxide and ammonium chloride.
 (ii) Sodium Nitrite and ammonium chloride.
- (b) Write balanced chemical equations for each of the following : [2]
 (i) When excess of ammonia is treated with chlorine.

(ii) An equation to illustrate the reducing nature of ammonia.

- (c) A, B, C and D summarize the properties of sulphuric acid depending on whether it is dilute or concentrated. [3]
 A = Typical acid property B = Non-volatile acid
 C = Oxidizing agent D = Dehydrating agent
 Choose the property (A, B, C or D) depending on which is relevant to each of the following :
- (i) Preparation of hydrogen chloride gas.
 (ii) Preparation of copper sulphate from copper oxide.
 (iii) Action of conc. sulphuric acid on sulphur.
- (d) Give reasons why : [3]
 (i) Sodium chloride will conduct electricity only in fused or aqueous solution state.
 (ii) In the electroplating of an article with silver, the electrolyte sodium argento-cyanide solution is preferred over silver nitrate solution.
 (iii) Although copper is a good conductor of electricity, it is a non-electrolyte.

Question 7.

- (a) (i) Name the solution used to react with Bauxite as a first step in obtaining pure aluminium oxide, in the Baeyer's process. [5]
 (ii) Write the equation for the reaction where the aluminium oxide for the electrolytic extraction of aluminium is obtained by heating aluminium hydroxide.
 (iii) Name the compound added to pure alumina to lower the fusion temperature during the electrolytic reduction of alumina.
 (iv) Write the equation for the reaction that occurs at the cathode during the extraction of aluminium by electrolysis.
 (v) Explain why it is preferable to use a number of graphite electrodes as anode instead of a single electrode, during the above electrolysis.
- (b) State what would you observe when : [2]
 (i) Washing soda crystals are exposed to the atmosphere.
 (ii) The salt ferric chloride is exposed to the atmosphere.
- (c) Identify the cations in each of the following case : [3]
 (i) NaOH solution when added to the solution (A) gives a reddish brown precipitate.
 (ii) NH_4OH solution when added to the solution (B) gives white ppt. which does not dissolve in excess.
 (iii) NaOH solution when added to solution (C) gives white ppt. which is insoluble in excess.

ANSWERS

SECTION-I

Answer 1.

(a) (i) Reducing agents, donors

(ii) High

(iii) Alkaline

(iv) AgCl

(v) Hydrogenation

(b) (i) (A) 17

(ii) (C) 1 : 1

(iii) (D) Copper and tin

(iv) (B) Mainly ions

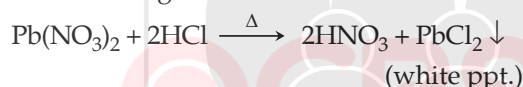
(v) (C) HCl is highly soluble in water.

(c) (i) $\text{AlN} + 3\text{H}_2\text{O} \longrightarrow \text{Al}(\text{OH})_3 + \text{NH}_3 \uparrow$

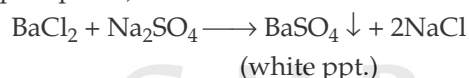
Ammonia gas

(ii) $\text{Cu} + 4\text{HNO}_3 \longrightarrow \text{Cu}(\text{NO}_3)_2 + 2\text{NO}_2 \uparrow + 2\text{H}_2\text{O}$ (iii) $\text{NaHCO}_3 + \text{HCl} \longrightarrow \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2 \uparrow$ (iv) $\text{Na}_2\text{SO}_3 + \text{H}_2\text{SO}_4 \longrightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O} + \text{SO}_2 \uparrow$ (v) $\text{C}_2\text{H}_5\text{Cl} + \text{KOH} \xrightarrow{\Delta} \text{C}_2\text{H}_5\text{OH} + \text{KCl}$

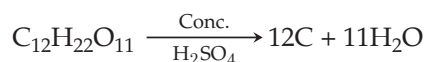
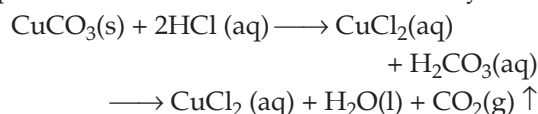
(d) (i) When dilute hydrochloric acid is added to lead nitrate and the mixture is heated, insoluble white precipitate of lead chloride is formed but is soluble on heating.



(ii) When barium chloride is added to sodium sulphate, the products are sodium chloride (which remains in the solution) and barium sulphate precipitate (which settles down as a white precipitate).

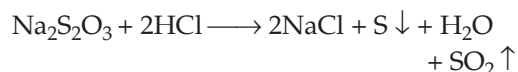


(iii) When concentrated sulphuric acid is added to sugar crystals, it leaves behind residue of black carbon.

(iv) When dilute hydrochloric acid is added to copper carbonate, a brisk effervescence is seen due to the evolution of CO_2 , with the formation of copper chloride and it turns lime water milky.

(v) Sodium thiosulphate reacts with dilute hydrochloric acid to produce sodium chloride,

gas of sulphur dioxide, water and sulphur in a yellow solid form.



(e) (i) Electronegativity

(ii) Froth Floatation

(iii) Nickel or Platinum

(iv) Addition reaction or hydrogenation reaction

(v) Valence electrons

(f) (i) Given,

Mass of 20 l of a gas at STP = 32 g

 \therefore Mass of 1 l of gas at STP would be

$$= \frac{32}{20} \text{ g}$$

We know that,

Gas at STP has volume

$$= 22.4 \text{ l}$$

 \therefore Gram molecular weight of the gas

$$= \frac{32}{20} \times 22.4$$

$$= 35.84 \text{ g}$$

(ii) $2\text{Ca}(\text{NO}_3)_2 \longrightarrow 2\text{CaO} + 4\text{NO}_2 + \text{O}_2$
(2 × 164) g (2 × 56)g 4 vol. 1 vol.

From the above given chemical reaction

328 g of $\text{Ca}(\text{NO}_3)_2$ decomposes to form 112 g of CaO \therefore 1 g of $\text{Ca}(\text{NO}_3)_2$ will decompose

$$= \frac{112}{328} \text{ g}$$

And thus 82 g of $\text{Ca}(\text{NO}_3)_2$ will decompose

$$= \frac{112}{328} \times 82 \text{ g}$$

$$= 28 \text{ g of CaO}$$

From given chemical equation :

328 g of $\text{Ca}(\text{NO}_3)_2$ gives 4 vol. of NO_2

And we know that a gas at STP has volume

$$= 22.4 \text{ l}$$

 \therefore Volume of NO_2 evolved when 82 g of $\text{Ca}(\text{NO}_3)_2$ is heated

$$= \frac{4 \times 22.4}{328} \times 82$$

$$= 22.4 \text{ l}$$

(g) (i) $\text{Pb}(\text{NO}_3)_2$ from PbO (C) Neutralization(ii) MgCl_2 from Mg (A) Simple displacement(iii) FeCl_3 from Fe (E) Combination

- (iv) NaNO_3 from NaOH (B) Titration
 (v) ZnCO_3 from ZnSO_4 (D) Precipitation
 (h) (i) 1. Propene 2. But-2-yne
 3. Ethanal
 (ii) 1. less than ($<$) 2. less than ($<$)

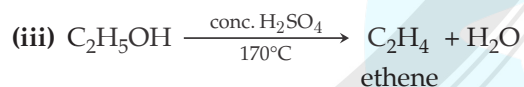
SECTION-II

Answer 2.

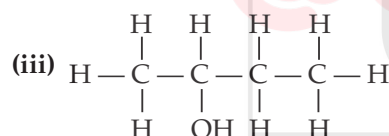
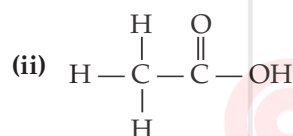
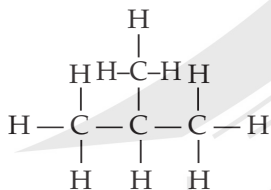
- (a) (i) Five valence electrons (ii) M
 (iii) T (iv) T
 (b) (i) Metallic (ii) Smallest
 (c) (i) 1. Ionic bond or electrovalent bond
 2. Covalent Bond
 (ii) 1. ZX 2. WX

Answer 3.

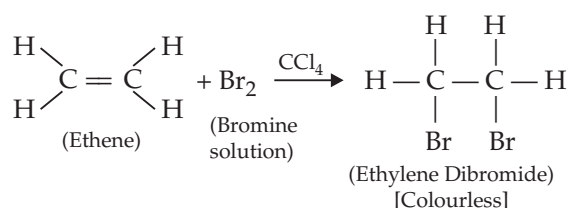
- (a) (i) $2\text{C}_2\text{H}_6 + 7\text{O}_2 \longrightarrow 4\text{CO}_2 \uparrow + 6\text{H}_2\text{O}$
 (ii) $\text{CaC}_2 + 2\text{H}_2\text{O} \longrightarrow \text{Ca(OH)}_2 + \text{C}_2\text{H}_2$
 ethyne



- (b) (i)



- (c) (i) $\begin{array}{c} \text{H} \quad \text{H} \\ | \quad | \\ \text{H}-\text{C}=\text{C}-\text{H} \end{array}$
 (ii) Bromine solution in CCl_4 has a reddish-brown colour. When added dropwise to ethene, the reddish-brown colour of bromine disappears, due to the formation of the colourless ethylene dibromide.



- (d) (i) Nitric oxide
 (ii) Sulphuric acid

Answer 4.

- (a) (i) Gas evolved : SO_2 (Sulphur dioxide)
 Chemical test : It changes orange acidified potassium dichromate green.
 (ii) Gas evolved : H_2S (Hydrogen sulphide)
 Chemical test : Turns lead acetate paper silvery black and turns moist blue litmus paper red.
 (b) (i) A pale blue precipitate is formed and the precipitate dissolves when excess of ammonium hydroxide is added, giving clear deep blue solution of tetra amine copper sulphate.
 (ii) White gelatinous precipitate of Zn(OH)_2 is formed and the ppt. dissolves in excess of ammonium hydroxide to give a clear transparent solution.

- (c) (i) $\text{CuSO}_4 \rightleftharpoons \text{Cu}^{2+} + \text{SO}_4^{2-}$
 $\therefore \text{CuSO}_4$ undergoes dissociation reaction.
 Cathode : $\text{Cu}^{2+} + 2e^- \longrightarrow \text{Cu}$ (Reduction)
 Anode : $\text{Cu} - 2e^- \longrightarrow \text{Cu}^{2+}$ (Oxidation)
 (ii) $\text{PbBr}_2 \rightleftharpoons \text{Pb}^{2+} + 2\text{Br}^-$
 Cathode : $\text{Pb}^{2+} + 2e^- \longrightarrow \text{Pb}$ (Reduction)
 Anode : $2\text{Br}^- - 2e^- \longrightarrow \text{Br}_2$ (Oxidation)
 (d) (i) O_2 (oxygen) gas
 (ii) Ag^+ ions and Cu^+ ions

Answer 5.

- (a) (i) 12×10^{24} molecules of O_2
 Number of mole = $\frac{12 \times 10^{24}}{6 \times 10^{23}} = 20$ mole
 1 mole of oxygen has the atomic weight $\rightarrow 32$ g
 20 mole $\rightarrow 32 \times 20 = 640$ g
 (ii) The volume of one mole gas at STP
 $= 22.4$ l
 $\therefore 20$ mole of gas at STP will have the volume of oxygen
 $= 20 \times 22.4$ l
 $= 448$ l

- (b)

| Element | Percentage | Molecules | Simple ratio | Simple whole ratio |
|---------|------------|--------------------------------|---------------------------------|--------------------|
| C | 82.76 | $\frac{82.76}{12}$ $= 6.89$ | $\frac{6.89}{6.89}$ $= 1$ | 2 |
| H | 17.24 | $\frac{17.24}{1}$ $= 17.24$ | $\frac{17.24}{6.89}$ $= 2.5$ | 5 |

∴ Empirical formula = C_2H_5

$$\begin{aligned}\text{Empirical formula mass} &= (12 \times 2) + (1 \times 5) \\ &= 24 + 5 = 29\end{aligned}$$

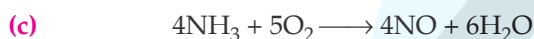
Vapour density \longrightarrow 29 (Given)

$$\begin{aligned}\text{Molecular mass} &= \text{V.D.} \times 2 = 29 \times 2 \\ &= 58 \text{ gm}\end{aligned}$$

$$\text{Molecular formula mass} = n \times \text{Empirical formula mass}$$

$$\begin{aligned}\Rightarrow n &= \frac{\text{Molecular Formula mass}}{\text{Empirical Formula mass}} \\ &= \frac{58}{29} = 2\end{aligned}$$

$$\begin{aligned}\text{Molecular formula} &= n \times \text{Empirical formula} \\ &= 2 \times C_2H_5 \\ &= C_4H_{10}\end{aligned}$$



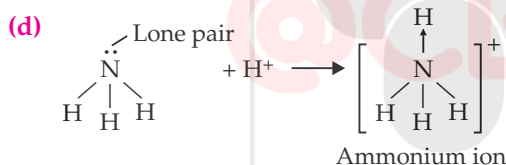
Given : Ammonia used in the reaction
= 100 cm^3

From the equation, 4 vol. of NH_3 requires 5 vol. of O_2 for its oxidation.

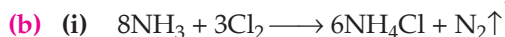
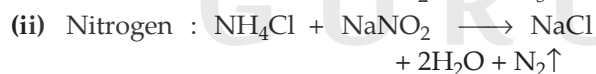
$$\therefore 1 \text{ vol. will require} = \frac{5}{4}$$

Thus 100 cm^3 of ammonia will require

$$\begin{aligned}&= \frac{5}{4} \times 100 \\ &= 125 \text{ cm}^3 \text{ of oxygen}\end{aligned}$$



Answer 6.



(c) (i) B = Non-volatile acid

(ii) A = Typical acid property

(iii) C = Oxidizing agent

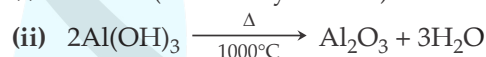
(d) (i) NaCl is an ionic compound. Sodium chloride ions in the solid state are held by the electrostatic force of attraction, thus are not free to move and conduct electricity but in the fused state, the crystal lattice breaks down and the charged particles (ions) are free to move and thus are able to conduct electricity.

(ii) In aqueous solution of sodium argentocyanide, silver ions migrate slowly as compared to that in silver nitrate. Thereby, ensuring even deposition of silver metal on the articles to be electroplated.

(iii) Copper is a good conductor of electricity but it is a non-electrolyte because it is a solid metal and has no mobile ions which act as charge carriers to conduct electricity.

Answer 7.

(a) (i) NaOH (sodium hydroxide)

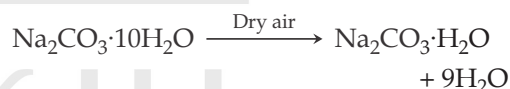


(iii) Cryolite and fluorspar

(iv) At cathode : $Al^{3+} + 3e^- \longrightarrow Al$

(v) During the electrolysis process, aluminium is deposited at the cathode and oxygen is liberated at the anode. Some of the oxygen reacts with the carbon in the graphite to form carbon dioxide, by consuming the anode slowly. Thus, the anodes have to be replaced periodically or a number of graphite electrode as anodes have to be used.

(b) (i) When crystals of washing soda are exposed to air, they lose 9 water molecules of crystallization and becomes monohydrate forming a white powder. Thus, shows the phenomenon of efflorescence.



(ii) The salt ferric chloride, when exposed to the atmosphere, absorbs water molecules to become moist and show the phenomenon of deliquescence.

(c) (i) Fe^{3+}

(ii) Pb^{2+}

(iii) Ca^{2+}

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Select from the list the gas that matches the description given in each case:
[ammonia, ethane, hydrogen chloride, hydrogen sulphide, ethyne] [5]

(i) This gas is used as a reducing agent in reducing copper oxide to copper.

(ii) This gas produces dense white fumes with ammonia gas.

(iii) This gas is used for welding purposes.

(iv) This gas is also a saturated hydrocarbon.

(v) This gas has a characteristic rotten egg smell.

- (b) Choose the most appropriate answer for each of the following : [5]

(i) Among the elements given below, the element with the least electronegativity is :

- (A) Lithium (B) Carbon
(C) Boron (D) Fluorine

(ii) Identify the statement which does not describe the property of alkenes :

- (A) They are unsaturated hydrocarbons
(B) They decolourise bromine water
(C) They can undergo addition as well as substitution reactions.
(D) They undergo combustion with oxygen forming carbon dioxide and water.

(iii) This is not an alloy of copper :

- (A) Brass (B) Bronze
(C) Solder (D) Duralumin

(iv) Bonding in this molecule can be understood to involve coordinate bonding :

- (A) Carbon tetrachloride (B) Hydrogen
(C) Hydrogen chloride (D) Ammonium chloride

(v) Which of the following would weigh the least ?

- (A) 2 gram atoms of Nitrogen
(B) 1 mole of silver
(C) 22.4 litre of oxygen gas at 1 atmospheric pressure and 273 K

(D) 6.02×10^{23} atoms of carbon

[Atomic masses : Ag = 108, N = 14, O = 16, C = 12]

- (c) Complete the following calculations. Show working for complete credit :

(i) Calculate the mass of calcium that will contain the same number of atoms as are present in 3.2 gm of sulphur.

[Atomic masses : S = 32, Ca = 40] [2]

(ii) If 6 litre of hydrogen and 4 litre of chlorine are mixed and exploded and if water is added to the gases formed, find the volume of the residual gas. [2]

(iii) If the empirical formula of a compound is CH and it has a vapour density of 13, find the molecular formula of the compound. [1]

- (d) State one relevant observation for each of the following : [5]

(i) When crystals of copper nitrate are heated in a test tube.

(ii) When the gaseous product obtained by dehydration of ethyl alcohol is passed through bromine water.

(iii) When hydrogen sulphide gas is passed through lead acetate solution.

(iv) When ammonia gas is burnt in an atmosphere of excess oxygen.

(v) At the anode when aqueous copper sulphate solution is electrolysed using copper electrodes.

- (e) Identify the acid which matches the following description (i) to (v) : [5]

(i) The acid which is used in the preparation of a non-volatile acid.

(ii) The acid which produces sugar charcoal from sugar.

(iii) The acid which is prepared by catalytic oxidation of ammonia.

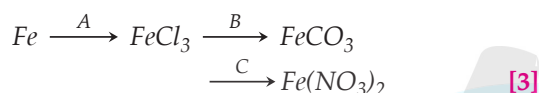
(iv) The acid on mixing with lead nitrate solution produces a white precipitate which is insoluble even on heating.

(v) The acid on mixing with silver nitrate solution produces a white precipitate which is soluble in excess ammonium hydroxide.

- (f) Give appropriate scientific reasons for the following statements : [5]

(i) Zinc oxide can be reduced to zinc by using carbon monoxide, but aluminium oxide cannot be reduced by a reducing agent.

- (ii) Carbon tetrachloride does not conduct electricity.
 (iii) During electrolysis of molten lead bromide graphite anode is preferred to other electrodes.
 (iv) The electrical conductivity of acetic acid is less in comparison to the electrical conductivity of dilute sulphuric acid at a given concentration.
 (v) Electrolysis of molten lead bromide is considered to be a redox reaction.
- (g) (i) Give balanced chemical equations for the following conversions A, B and C :



- (ii) Differentiate between the terms strong electrolyte and weak electrolyte. (stating any two differences) [3]
 (h) Answer the following questions :
 (i) Explain the bonding in methane molecule using electron dot structure. [2]
 (ii) The metals of Group 2 from top to bottom are Be, Mg, Ca, Sr, and Ba.
 (1) Which one of these elements will form ions most readily and why?
 (2) State the common feature in the electronic configuration of all these elements. [3]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

- (a) Arrange the following as per the instructions given in the brackets : [4]
 (i) Cs, Na, Li, K, Rb (increasing order of metallic character).
 (ii) Mg, Cl, Na, S, Si (decreasing order of atomic size).
 (iii) Na, K, Cl, S, Si (increasing order of ionization energy)
 (iv) Cl, F, Br, I (increasing order of electron affinity)
- (b) Choose the most appropriate answer from the following list of oxides which fit the description. Each answer may be used only once : [4]
 [SO₂, SiO₂, Al₂O₃, MgO, CO, Na₂O]
 (i) A basic oxide.
 (ii) An oxide which dissolves in water forming an acid.
 (iii) An amphoteric oxide.
 (iv) A covalent oxide of a metalloid.
- (c) Element X is a metal with a valency 2, Y is a non-metal with a valency 3. [2]
 (i) Write an equation to show how Y forms an ion.
 (ii) If Y is a diatomic gas, write an equation for the direct combination of X and Y to form a compound.

Question 3.

- (a) Give balanced chemical equations for the following conversions: [3]
 (i) Ethanoic acid to ethyl ethanoate.
 (ii) Calcium carbide to ethyne
 (iii) Sodium ethanoate to methane.
- (b) Using their structural formulae identify the functional group by circling them : [2]
 (i) Dimethyl ether (ii) Propanone.
- (c) Name the following : [5]
 (i) Process by which ethane is obtained from ethene.
 (ii) A hydrocarbon which contributes towards the greenhouse effect.
 (iii) Distinctive reaction that takes place when ethanol is treated with acetic acid.
 (iv) The property of elements by virtue of which atoms of the element can link to each other in the form of a long chain or ring structure.
 (v) Reaction when an alkyl halide is treated with alcoholic potassium hydroxide.

Question 4.

- (a) Identify the anion present in each of the following compounds : [3]
 (i) A salt M on treatment with concentrated sulphuric acid produces a gas which fumes in moist air and gives dense fumes with ammonia.
 (ii) A salt D on treatment with dilute sulphuric acid produces a gas which turns lime water milky but has no effect on acidified potassium dichromate solution.
 (iii) When barium chloride solution is added to salt solution E a white precipitate insoluble in dilute hydrochloric acid is obtained.
- (b) The following table shows the tests a student performed on four different aqueous solutions which are X, Y, Z and W. Based on the observations provided, identify the cation present : [4]

| Chemical test | Observation | Conclusion |
|--|---|------------|
| To solution X, ammonium hydroxide is added in minimum quantity first and then in excess. | A dirty white precipitate is formed which dissolves in excess to form a clear solution. | (i) |
| To solution Y ammonium hydroxide is added in minimum quantity first and then in excess. | A pale blue precipitate is formed which dissolves in excess to form a clear inky blue solution. | (ii) |

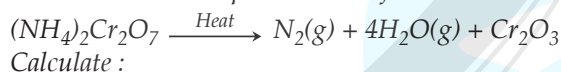
| | | |
|--|---|-------|
| To solution W a small quantity of sodium hydroxide solution is added and then in excess. | A white precipitate is formed which remains insoluble. | (iii) |
| To a salt Z calcium hydroxide solution is added and then heated. | A pungent smelling gas turning moist red litmus paper blue is obtained. | (iv) |

(c) Give balanced chemical equations for each of the following : [3]

- (i) Lab preparation of ammonia using an ammonium salt.
 (ii) Reaction of ammonia with excess chlorine.
 (iii) Reaction of ammonia with sulphuric acid.

Question 5.

(a) Consider the following reaction and based on the reaction answer the questions that follow :



Calculate :

- (i) The quantity in moles of $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ if 63 gm of $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ is heated. [1]
 (ii) The quantity in moles of nitrogen formed. [1]
 (iii) The volume in litres or dm^3 of N_2 evolved at S.T.P. [1]
 (iv) The mass in gram of Cr_2O_3 formed at the same time. [2]

[Atomic masses : H = 1, Cr = 52, N = 14]

(b) (i) For each of the substance listed below, describe the role played in the extraction of aluminium : [3]

- (1) Cryolite
 (2) Sodium hydroxide (3) Graphite

(ii) Explain why : [2]

- (1) In the electrolysis of alumina using the Hall Heroult's process the electrolyte is covered with powdered coke.
 (2) Iron sheets are coated with zinc during galvanization.

Question 6.

(a) (i) Give balanced chemical equations for the action of sulphuric acid on each of the following : [2]

- (1) Potassium hydrogen carbonate.
 (2) Sulphur.

(ii) In the contact process for the manufacture of sulphuric acid give the equations for the conversion of sulphur trioxide to sulphuric acid. [2]

(b) (i) Copy and complete the following table : [2]

| | Anode | Electrolyte |
|------------------------|-------|-------------|
| Purification of copper | | |

(ii) Write the equation taking place at the anode. [1]

(c) Explain the following : [3]

- (i) Dilute nitric acid is generally considered a typical acid but not so in its reaction with metals.
 (ii) Concentrated nitric acid appears yellow when it is left standing in a glass bottle.
 (iii) An all glass apparatus is used in the laboratory preparation of nitric acid.

Question 7.

(a) The following questions are pertaining to the laboratory preparation of hydrogen chloride gas :

- (i) Write the equation for its preparation mentioning the condition required. [1]
 (ii) Name the drying agent used and justify your choice. [2]
 (iii) State a safety precaution you would take during the preparation of hydrochloric acid. [1]

(b) An element L consists of molecules : [2]

(i) What type of bonding is present in the particles that make up L ?

(ii) When L is heated with iron metal, it forms a compound FeL . What chemical term would you use to describe the change undergone by L ?

(c) From the list of the following salts choose the salt that most appropriately fits the description given in the following :

$[\text{AgCl}, \text{MgCl}_2, \text{NaHSO}_4, \text{PbCO}_3, \text{ZnCO}_3, \text{KNO}_3, \text{Ca}(\text{NO}_3)_2]$

(i) A deliquescent salt.

(ii) An insoluble chloride.

(iii) On heating, this salt gives a yellow residue when hot and white when cold.

(iv) On heating this salt, a brown coloured gas is evolved. [4]

ANSWERS

SECTION-I

Answer 1.

- (a) (i) Ammonia (ii) Hydrogen chloride
 (iii) Ethyne (iv) Ethane
 (v) Hydrogen sulphide.
 (b) (i) (A) Lithium

(ii) (C) They can undergo addition as well as substitution reactions.

(iii) (C) Solder

(iv) (D) Ammonium chloride

(v) (D) 6.02×10^{23} atoms of carbon

(c) (i) 32 g of sulphur contain
 $= 6.023 \times 10^{23}$ atoms

∴ 3.2 g of sulphur contain

$$= \frac{6.023 \times 10^{23}}{32} \times 3.2$$

$$= 6.023 \times 10^{22}$$

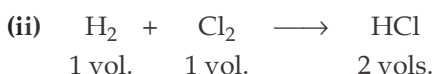
Now, 6.023×10^{23} atom of calcium have mass = 40 g

∴ 6.023×10^{22} atoms of calcium have mass

$$= \frac{40}{6.023 \times 10^{23}} \times 6.023 \times 10^{22}$$

$$= 4 \text{ g}$$

Hence, the mass of calcium is 4 g.



Since, 1 volume of chlorine reacts with 1 volume of hydrogen.

∴ 4 litre of chlorine will react with only 4 volumes of hydrogen.

∴ (6 - 4) i.e., 2 litre of hydrogen will remain unreacted.

HCl formed will get dissolved in water.

∴ Volume of residual gas hydrogen is 2 litre.

(iii) Given,

Empirical formula = CH

Now, Empirical formula mass

$$= 12 \times 1 + 1 \times 1 = 13$$

$$\text{Molecular mass} = 2 \times \text{Vapour density}$$

$$= 2 \times 13 = 26$$

Molecular formula mass

$$= n \times \text{Empirical formula mass}$$

$$\therefore n = \frac{\text{Molecular formula mass}}{\text{Empirical formula mass}}$$

$$= \frac{26}{13} = 2$$

Molecular formula = $n \times$ Empirical formula

$$= 2 \times (\text{CH})$$

$$= \text{C}_2\text{H}_2$$

Hence, the molecular formula of the compound is C_2H_2 .

(d) (i) The blue coloured copper nitrate crystals changes into black powdery residue CuO with the release of reddish brown NO_2 gas.

(ii) The reddish brown colour of bromine water disappears.

(iii) Lead acetate solution becomes black due to the formation of lead sulphide.

(iv) Ammonia burns with a yellowish green flame in the atmosphere of excess oxygen.

(v) The copper of the anode dissolves and, therefore, it becomes thin gradually.

(e) (i) Conc. nitric acid

(ii) Conc. sulphuric acid

(iii) Conc. nitric acid

(iv) Dil. sulphuric acid

(v) Dil. hydrochloric acid.

(f) (i) This is because of the fact that aluminium has great affinity towards oxygen than zinc and so aluminium oxide cannot be reduced by reducing agents such as carbon monoxide or carbon or hydrogen.

(ii) This is because of the absence of free ions in the carbon tetrachloride molecule.

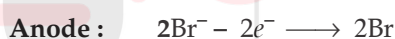
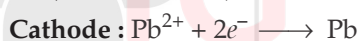
(iii) This is because graphite rod is unaffected by the reactive bromine vapours formed during electrolysis at anode. Graphite is inert in nature.

(iv) This is because acetic acid being a weak acid partially dissociates and produces less ions in solution whereas sulphuric acid being a strong acid completely dissociates and produces more free ions in solution. Hence, conduction of electric current in acetic acid is less as compared to dil. H_2SO_4 at given concentration.

(v) This is because of the fact that during electrolysis of molten lead bromide, both reduction (at cathode) and oxidation (at anode) takes place. At cathode, Pb^{2+} ions gain electrons and get reduced while at anode, Br^- ions lose electrons and get oxidised.



(Lead Bromide)



Chlorine gas

Iron (III) Chloride

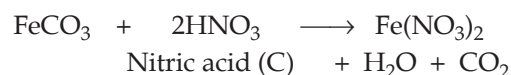
(Dry) (A)



Sodium

carbonate

solution (B)



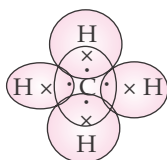
Nitric acid (C)

(ii)

| Strong Electrolyte | Weak Electrolyte |
|--|--|
| They allow a large amount of electricity to flow through them i.e., they are good conductors of electricity. | They allow small amount of electricity to flow through them i.e., they are poor conductors of electricity. |

| | |
|--|--|
| They are completely dissociated into the fused or aqueous solution state and contains only free mobile ions. | They are partially dissociated into their fused or aqueous solution state and contain ions as well as molecules. |
|--|--|

- (h) (i) To attain the stable electronic configuration of the nearest noble gas, carbon needs four electrons and hydrogen needs one electron. Therefore, in the methane molecule formation, one atom of carbon shares four electron pairs, one with each of the four atoms of hydrogen resulting in the formation of four single covalent bond between them. The electron sharing can be illustrated using electron dot structure which is as follows :



Electron dot structure of methane molecule where \times = electron of carbon atom

\cdot = electron of hydrogen atom

- (ii) 1. Barium (Ba) will form ions most readily because its ionisation potential is lowest in the group. Hence, the removal of electrons is easy.
2. All these elements have two electrons in their valence or outer most shell.

SECTION-II

Answer 2.

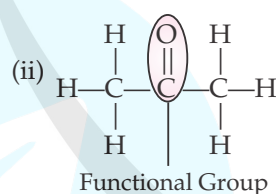
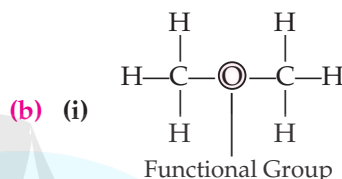
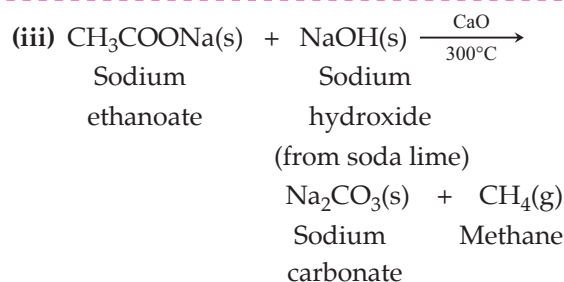
- (a) (i) $\text{Li} < \text{Na} < \text{K} < \text{Rb} < \text{Cs}$
(ii) $\text{Na} > \text{Mg} > \text{Si} > \text{S} > \text{Cl}$
(iii) $\text{K} < \text{Na} < \text{Si} < \text{S} < \text{Cl}$
(iv) $\text{I} < \text{Br} < \text{F} < \text{Cl}$

- (b) (i) Na_2O , MgO (ii) SO_2
(iii) Al_2O_3 (iv) SiO_2 .

- (c) (i) $\text{Y} + 3e^- \longrightarrow \text{Y}^{3-}$
(ii) $3\text{X} + \text{Y}_2 \longrightarrow \text{X}_3\text{Y}_2$.

Answer 3.

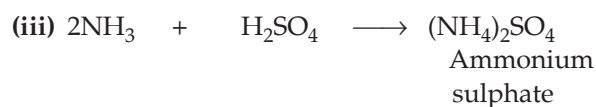
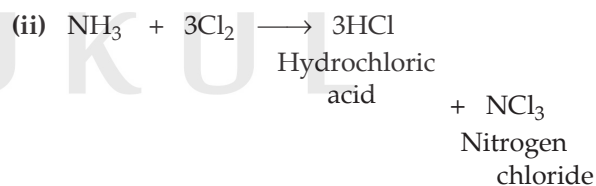
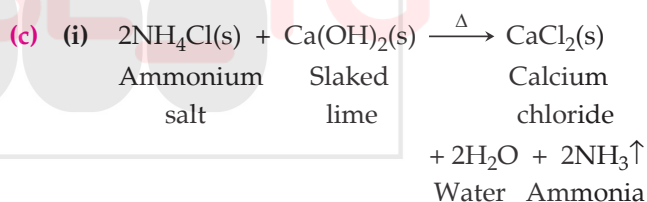
- (a) (i) $\text{CH}_3\text{COOH}(\text{l}) + \text{C}_2\text{H}_5\text{OH}(\text{l})$
Ethanoic acid Ethanol
 $\xrightarrow{\text{Conc. H}_2\text{SO}_4} \text{CH}_3\text{COOC}_2\text{H}_5(\text{l}) + \text{H}_2\text{O}(\text{l})$
Ethyl ethanoate Water
(ester)
- (ii) $\text{CaC}_2(\text{s}) + 2\text{H}_2\text{O}(\text{l}) \longrightarrow \text{Ca}(\text{OH})_2(\text{s})$
Calcium Calcium
carbide hydroxide
 $+ \text{C}_2\text{H}_2(\text{g})$
Ethyne



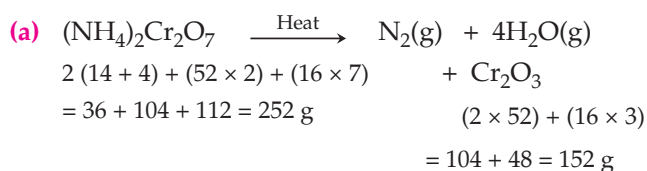
- (c) (i) Hydrogenation (ii) Methane (CH_4)
(iii) Esterification (iv) Catenation
(v) Dehydrohalogenation

Answer 4.

- (a) (i) Cl^- (ii) CO_3^{2-} or HCO_3^-
(iii) SO_4^{2-}
(b) (i) $\text{X} - \text{Zn}^{2+}$ (ii) $\text{Y} - \text{Cu}^{2+}$
(iii) $\text{W} - \text{Ca}^{2+}$ or Mg^{2+}
(iv) $\text{Z} - \text{NH}_4^+$



Answer 5.



(i) $252 \text{ g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7 = 1 \text{ mole}$

$$\therefore 63 \text{ g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7 = \frac{63}{252} = 0.25 \text{ mole}$$

Hence, 0.25 mole of $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ is heated

(ii) From the chemical equation

1 mole of $(\text{NH}_4)_2\text{Cr}_2\text{O}_7$ liberates 1 mole of N_2

$\therefore 0.25 \text{ mole of } (\text{NH}_4)_2\text{Cr}_2\text{O}_7 \text{ liberates } 0.25 \text{ moles of } \text{N}_2$

(iii) Volume of 1 mole of N_2 at S.T.P. is 22.4 l .

$\therefore 0.25 \text{ mole of } \text{N}_2 \text{ at S.T.P. has volume} = 22.4 \times 0.25 = 5.6 \text{ l}$

(iv) $252 \text{ g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7$ gives $152 \text{ g } \text{Cr}_2\text{O}_3$

$$\therefore 63 \text{ g } (\text{NH}_4)_2\text{Cr}_2\text{O}_7 \text{ gives} = \frac{152 \times 63}{252} \text{ g}$$

$$\text{Cr}_2\text{O}_3 = 38 \text{ g } \text{Cr}_2\text{O}_3$$

Hence, the mass of Cr_2O_3 formed is 38 g .

(b) (i) Cryolite acts as a solvent for the electrolytic mixture and also lowers the fusion temperature from 2050°C to 950°C which saves electrical energy. It increases the electrical conductivity and acts as a solvent.

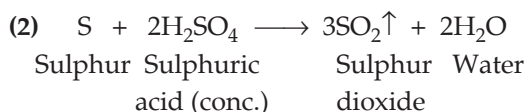
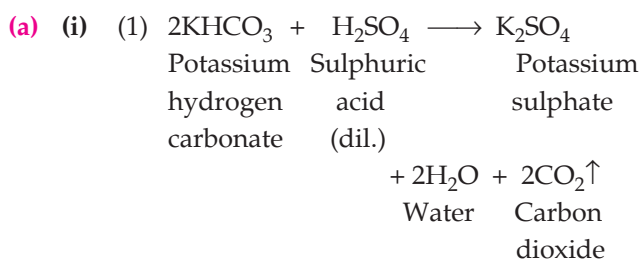
(2) Sodium hydroxide is used to remove insoluble impurities from the ore. When bauxite ore is treated with sodium hydroxide, it dissolves and forms sodium aluminate leaving behind insoluble impurities called red mud (consists of ferric oxide, sand etc.)

(3) Graphite is used as an electrode in the extraction of aluminium because it has a very high melting point and is a good conductor of electricity.

(ii) (1) To reduce the heat loss by radiation and to prevent burning of anode in air at the point above the electrolyte. It also prevents the oxidation of the anode.

(2) Iron sheets are coated with zinc during galvanization to prevent them from rusting as zinc is more reactive than iron.

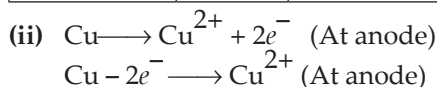
Answer 6.



(ii) Refer to ICSE Paper 2017, Answer 4 (c).

(b) (i)

| | Anode | Electrolyte |
|------------------------|---------------|---|
| Purification of copper | Impure copper | Copper sulphate solution with little amount of sulphuric acid |

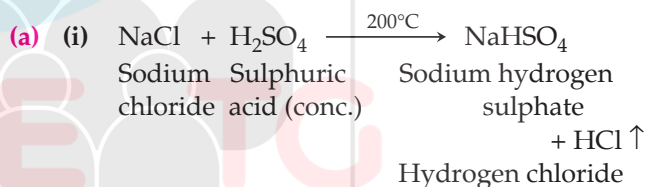


(c) (i) Dilute nitric acid is generally considered a typical acid but not so in its reaction with metals because it does not liberate hydrogen with all metals except Mg and Mn. It is a powerful oxidising agent and the nascent oxygen formed oxidises the hydrogen to water.

(ii) Concentrated nitric acid appears yellow when it is left standing in a glass bottle because when nitric acid is left standing in a glass bottle, it decomposes to give reddish brown NO_2 gas which dissolves in undecomposed nitric acid to give a yellow colour.

(iii) An all glass apparatus is used in the laboratory preparation of nitric acid because nitric acid vapours are corrosive and destroy materials like rubber, cork or metal.

Answer 7.



When metal chlorides react with conc. H_2SO_4 , hydrogen chloride gas is liberated. The temperature is kept less than 200°C , because if temperature increases then sodium sulphate is formed.

(ii) It is dried by passing through conc. sulphuric acid because it does not react with hydrogen chloride gas.

(iii) While preparing hydrochloric acid, HCl gas is dissolved in water by inverted funnel arrangement as HCl gas is highly soluble in water and causes back suction. Back suction is undesired as it breaks the apparatus. It is prevented by using funnel arrangement.

(b) (i) Covalent bonding since L consists of molecules.

(ii) L is getting reduced.

(c) (i) MgCl_2 (ii) AgCl

(iii) ZnCO_3 (iv) $\text{Ca}(\text{NO}_3)_2$.

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Choose the correct answer from the options given below : [10]

(i) Ionization potential increases over a period from left to right because the :

- (A) Atomic radius increases and nuclear charge increases
- (B) Atomic radius decreases and nuclear charge decreases
- (C) Atomic radius increases and nuclear charge decreases
- (D) Atomic radius decreases and nuclear charge increases.

(ii) A compound X consists of only molecules. Hence X will have :

- (A) A crystalline hard structure.
- (B) A low melting point and low boiling point.
- (C) An ionic bond.
- (D) A strong force of attraction between its molecules.

(iii) When fused lead bromide is electrolyzed we observe :

- (A) a silver grey deposit at anode and a reddish brown deposit at cathode.
- (B) a silver grey deposit at cathode and a reddish brown deposit at anode.
- (C) a silver grey deposit at cathode and reddish brown fumes at anode.
- (D) silver grey fumes at anode and reddish brown fumes at cathode.

(iv) The main ore used for the extraction of iron is :

- (A) Haematite
- (B) Calamine
- (C) Bauxite
- (D) Cryolite

(v) Heating an ore in a limited supply of air or in the absence of air at a temperature just below its melting point is known as :

- (A) smelting
- (B) ore dressing
- (C) calcination
- (D) bessemerisation

(vi) If an element A belongs to Period 3 and Group II then it will have :

- (A) 3 shells and 2 valence electrons.
- (B) 2 shells and 3 valence electrons.
- (C) 3 shells and 3 valence electrons.
- (D) 2 shells and 2 valence electrons.

(vii) The molecule containing a triple co-valent bond is :

- (A) ammonia
- (B) methane
- (C) water
- (D) nitrogen

(viii) The electrolyte used for electroplating an article with silver is :

- (A) silver nitrate solution
- (B) silver cyanide solution
- (C) sodium argentocyanide solution
- (D) nickel sulphate solution.

(ix) Aluminium powder is used in thermite welding because :

- (A) it is a strong reducing agent.
- (B) it is a strong oxidising agent.
- (C) it is corrosion resistant.
- (D) it is a good conductor of heat.

(x) The I.U.P.A.C. name of acetylene is :

- (A) propane
- (B) propyne
- (C) ethene
- (D) ethyne.

- (b) Fill in the blanks from the choices given within brackets : [5]

(i) The basicity of acetic acid is(3, 1, 4).

(ii) The compound formed when ethanol reacts with sodium is (sodium ethanoate, sodium ethoxide, sodium propanoate).

(iii) Quicklime is not used to dry HCl gas because.....(CaO is alkaline, CaO is acidic, CaO is neutral).

(iv) Ammonia gas is collected by(an upward displacement of air, a downward displacement of water, a downward displacement of air).

(v) Cold, dilute nitric acid reacts with copper to form.....(Hydrogen, nitrogen dioxide, nitric oxide).

(c) Give one word or phrase for the following :

(i) The ratio of the mass of a certain volume of gas to the mass of an equal volume of hydrogen under the same conditions of temperature and pressure.

(ii) Formation of ions from molecules.

(iii) Electrolytic deposition of a superior metal on a baser metal.

(iv) Hydrocarbons containing a $\begin{array}{c} \text{O} \\ || \\ -\text{C}- \end{array}$ functional group.

(v) The amount of energy released when an atom in the gaseous state accepts an electron to form an anion.

(d) Match the options A to E with the statements (i) to (v) :

| | | | |
|---|------------------------|-------|--|
| A | alkynes | (i) | No. of molecules in 22.4 dm ³ of carbon dioxide at S.T.P. |
| B | alkane | (ii) | An element with electronic configuration 2, 8, 8, 3. |
| C | iron | (iii) | $\text{C}_n \text{H}_{2n+2}$ |
| D | 6.023×10^{23} | (iv) | $\text{C}_n \text{H}_{2n-2}$ |
| E | metal | (v) | The metal that forms two types of ions. |

(e) Write balanced equations for the following :

(i) Action of heat on a mixture of copper and concentrated nitric acid.

(ii) Action of warm water on magnesium nitride.

(iii) Action of concentrated sulphuric acid on carbon.

(iv) Action of dilute hydrochloric acid on sodium sulphide.

(v) Preparation of ethane from sodium propionate.

(f) Distinguish between the following pairs of compounds using the test given within brackets :

(i) Iron (II) sulphate and iron (III) sulphate (using ammonium hydroxide).

(ii) A lead salt and a zinc salt (using excess ammonium hydroxide).

(iii) Sodium nitrate and sodium sulphite (using dilute sulphuric acid).

(iv) Dilute sulphuric acid and dilute hydrochloric acid (using barium chloride solution).

(v) Ethane and ethene (using alkaline potassium permanganate solution).

(g) (i) Oxygen oxidizes ethyne to carbon dioxide and water as shown by the equation :

What volume of ethyne gas at S.T.P. is required to produce 8.4 dm³ of carbon dioxide at S.T.P. ? [H = 1, C = 12, O = 16](ii) A compound made up of two elements X and Y has an empirical formula X₂Y. If the atomic weight of X is 10 and that of Y is 5 and the compound has a vapour density 25, find its molecular formula.

SECTION-II (40 Marks)

Attempt any four questions from this Section.

Question 2.

(a) State your observation in each of the following cases :

(i) When dilute hydrochloric acid is added to sodium carbonate crystals.

(ii) When excess sodium hydroxide is added to calcium nitrate solution.

(iii) At the cathode when acidified aqueous copper sulphate solution is electrolyzed with copper electrodes.

(iv) When calcium hydroxide is heated with ammonium chloride crystals.

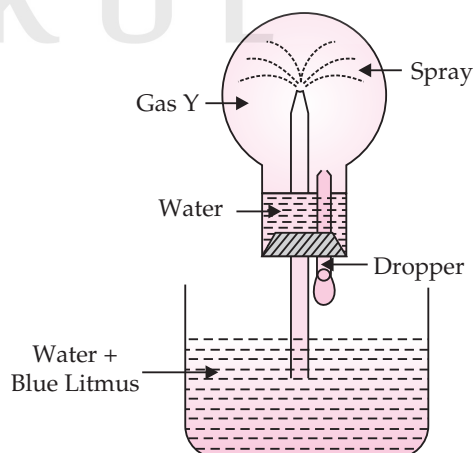
(v) When moist starch iodide paper is introduced into chlorine gas.

(b) Study the figure given below and answer the questions that follow :

(i) Identify the gas Y.

(ii) What property of gas Y does this experiment demonstrate ?

(iii) Name another gas which has the same property and can be demonstrated through this experiment.



- (c) (i) Name the other ion formed when ammonia dissolves in water.
(ii) Give one test that can be used to detect the presence of the ion produced. [2]

Question 3.

- (a) State the conditions required for the following reactions to take place : [5]
(i) Catalytic hydrogenation of ethyne.
(ii) Preparation of ethyne from ethylene dibromide.
(iii) Catalytic oxidation of ammonia to nitric oxide.
(iv) Any two conditions for the conversion of sulphur dioxide to sulphur trioxide.
- (b) State the main components of the following alloys : [3]
(i) Brass. (ii) Duralumin.
(iii) Bronze.
- (c) Give balanced equations for the following : [2]
(i) Laboratory preparation of nitric acid.
(ii) Preparation of ethanol from monochloroethane and aq. sodium hydroxide.

Question 4.

- (a) Give the structural formula of the following : [4]
(i) ethanol
(ii) 1-propanal
(iii) ethanoic acid
(iv) 1, 2-dichloroethane.
- (b) Draw the structure of the stable positive ion formed when an acid dissolves in water. [2]
- (c) State the inference drawn from the following observations : [4]
(i) On carrying out the flame test with a salt P a brick red flame was obtained. What is the cation in P ?
(ii) A gas Q turns moist lead acetate paper silvery black. Identify the gas Q.
(iii) pH of liquid R is 10. What kind of substance is R ?
(iv) Salt S is prepared by reacting dilute sulphuric acid with copper oxide. Identify S.

Question 5.

- (a) Name the following : [3]
(i) The property possessed by metals by which they can be beaten into sheets.
(ii) A compound added to lower the fusion temperature of electrolytic bath in the extraction of aluminium.
(iii) The ore of zinc containing its sulphide.
- (b) Give one equation each to show the following properties of sulphuric acid : [3]

- (i) Dehydrating property.
(ii) Acidic nature.
(iii) As a non-volatile acid.
- (c) Give balanced chemical equations to prepare the following salts : [4]
(i) Lead sulphate from lead carbonate.
(ii) Sodium sulphate using dilute sulphuric acid.
(iii) Copper chloride using copper carbonate.

Question 6.

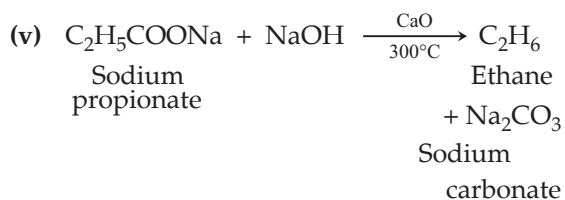
- (a) (i) State Avogadro's Law.
(ii) A cylinder contains 68 g of ammonia gas at S.T.P.
(1) What is the volume occupied by this gas ?
(2) How many moles of ammonia are present in the cylinder ?
(3) How many molecules of ammonia are present in the cylinder ? [N-14, H-1] [4]
- (b) (i) Why do covalent compounds exist as gases, liquids or soft solids ?
(ii) Which electrode : anode or cathode is the oxidising electrode ? Why ? [3]
- (c) Name the kind of particles present in : [3]
(i) Sodium Hydroxide solution.
(ii) Carbonic acid.
(iii) Sugar solution.

Question 7.

- (a) An element Z has atomic number 16. Answer the following questions on Z : [5]
(i) State the period and group to which Z belongs.
(ii) Is Z a metal or a non-metal ?
(iii) State the formula between Z and hydrogen.
(iv) What kind of a compound is this ?
- (b) M is a metal above hydrogen in the activity series and its oxide has the formula M_2O . This oxide when dissolved in water forms the corresponding hydroxide which is a good conductor of electricity. In the above context answer the following : [5]
(i) What kind of combination exists between M and O ?
(ii) How many electrons are there in the outermost shell of M ?
(iii) Name the group to which M belongs.
(iv) State the reaction taking place at the cathode.
(v) Name the product at the anode. [5]

Answer 1.

- (iv) $\text{Na}_2\text{S} + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{H}_2\text{S} \uparrow$
 Sodium Dil. Sodium Hydrogen
 sulphide chloride sulphide gas



- | Iron (II) Sulphate | Iron (III) Sulphate |
|--------------------------|----------------------------|
| Dirty green precipitate. | Reddish Brown precipitate. |

- | Lead Salt | Zinc Salt |
|--|--|
| White precipitate, insoluble in excess of NH_4OH solution. | Gelatinous white ppt., dissolves in excess of NH_4OH solution. |

- | Sodium Nitrate | Sodium Sulphite |
|----------------|--|
| No effect. | Colourless gas <i>i.e.</i> , SO ₂ with smell of burning sulphur is liberated which turns moist blue litmus paper red. |

- | Dilute Sulphuric acid | Dilute hydrochloric acid |
|---|--------------------------|
| Thick white precipitate is obtained which remains insoluble in nitric acid. | No effect. |

- | Ethane | Ethene |
|---|--|
| No effect as potassium permanganate remain purple | Solution of potassium permanganate gets decolourised. The purple colour gets decolourised. |

- $$\begin{array}{ccc} 2\text{C}_2\text{H}_2 + 5\text{O}_2 & \rightarrow & 4\text{CO}_2 + 2\text{H}_2\text{O} \\ 2 \text{ vol.} & & 4 \text{ vol.} \\ 1 \text{ vol.} & & 2 \text{ vol.} \end{array}$$

2 volume of CO_2 is produced from 1 vol. of C_2H_2

∴ 8.4 dm³ of CO₂ at S.T.P. produced from

$$= \frac{1 \times 8.4}{2}$$

$$= 4.2 \text{ dm}^3 \text{ of C}_2\text{H}_2$$

At S.T.P. 4.2 dm³ of ethyne is required.

Empirical formula weight

$$= X_2Y = 2 \times 10 + 5$$

$$= 25$$

(ii) Molecular formula

$$= (\text{Empirical formula}) \times n$$

$$n = \frac{\text{Molecular formula weight}}{\text{Empirical formula weight}}$$

$$= \frac{2 \times \text{V.D.}}{(2 \times 10 + 5)}$$

(V.D. = Vapour Density)

$$= \frac{2 \times 25}{25} = 2$$

∴ Molecular formula

$$= (X_2Y) \times 2 = X_4Y_2$$

SECTION-II

Answer 2.

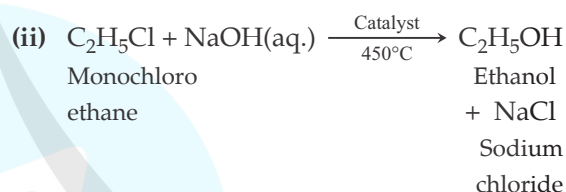
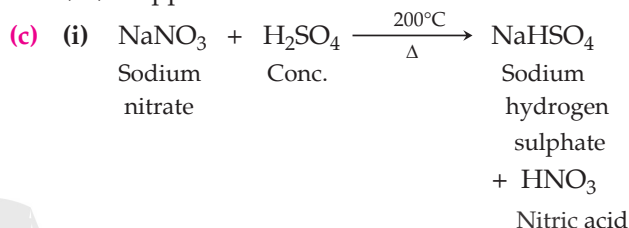
- (a) (i) A colourless, odourless gas with brisk effervescence is evolved and when tested turns moist blue litmus red and lime water milky.
 (ii) A chalky white ppt. is obtained which is insoluble in excess sodium hydroxide.
 (iii) Cathode becomes thick due to deposition of red copper metal.
 (iv) A colourless gas with characteristic pungent smell of ammonia is evolved.
 (v) Starch iodide paper turns blue-black.
- (b) (i) Y is hydrochloride (HCl) gas.
 (ii) Gas Y is highly soluble in water.
 (iii) Ammonia gas.
- (c) (i) Hydroxide ion.
 (ii) It will turn moist red litmus to blue.

Answer 3.

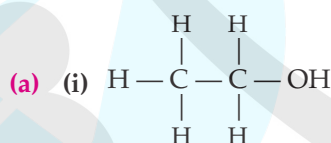
- (a) (i) In the presence of catalyst like finely divided nickel, platinum, etc., and on heating upto 473 K or about 300°C hydrogenation takes place.
 (ii) Hot and concentrated ethanolic solution of potassium hydroxide.
 (iii) Platinum gauze is used as catalyst at 800°C in presence of oxygen.

(iv) Vanadium pentaoxide acts as catalyst and temperature of 450 – 500 °C and 2 atm. pressure.

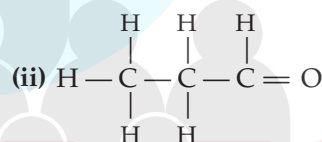
- (b) (i) Copper and zinc.
 (ii) Aluminium and copper.
 (iii) Copper and tin.



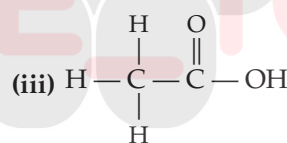
Answer 4.



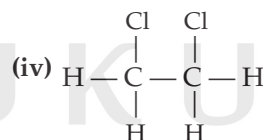
Ethanol



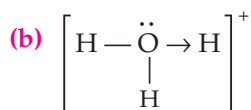
1-Propanal



Ethanoic acid



1,2-dichloroethane



(H₃O⁺) Hydronium ion.

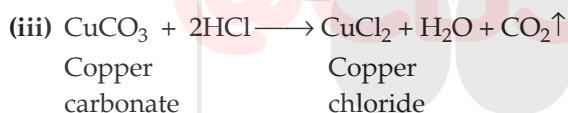
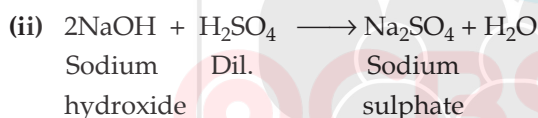
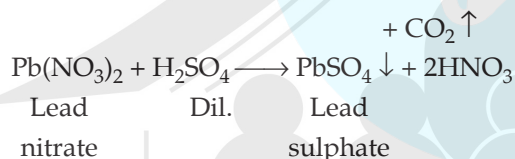
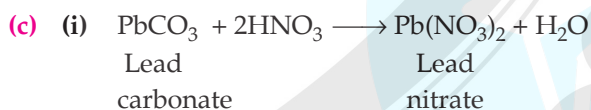
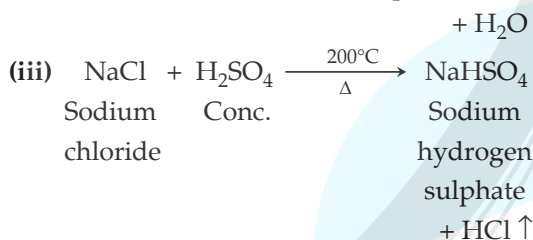
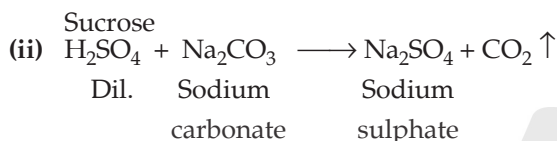
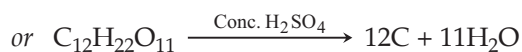
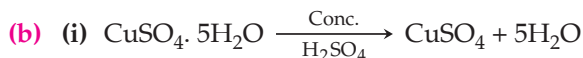
- (c) (i) Cation in P is Ca²⁺.
 (ii) Gas Q is hydrogen sulphide (H₂S).
 (iii) Substance R is alkaline.
 (iv) Salt S is copper sulphate (CuSO₄).

Answer 5.

(a) (i) Malleability

(ii) Cryolite or Na_3AlF_6

(iii) Zinc blende.

**Answer 6.**(a) (i) **Avogadro's Law** : "Under same temperature and pressure conditions, equal volumes of different gases contain equal number of molecules."(ii) Molecular weight of $\text{NH}_3 = (14 + 3 \times 1) = 17\text{g}$

(1) At S.T.P., 17 g of ammonia occupies 22.4 l

 \therefore Volume occupied by 68 g of ammonia

$$= 22.4 \times \frac{68}{17}$$

$$= 89.6 \text{ l}$$

(2) At S.T.P., 17 g of ammonia contains 1 mole
68 g of ammonia contains

$$= 1 \times \frac{68}{17}$$

$$= 4 \text{ moles}$$

(3) Number of molecules

$$= \text{No. of moles} \times N_A$$

$$= 4 \times 6.023 \times 10^{23}$$

$$= 24.092 \times 10^{23}$$

(b) (i) Covalent compounds exist as gases, liquids or soft solids because they are held by relatively weaker forces that are known as van der Waals' forces.

(ii) Anode is the oxidising electrode because anions lose electrons at anode.

(c) (i) NaOH – Ions only.

(ii) Carbonic acid – Ions and molecules both.

(iii) Sugar Solution – Molecules only.

Answer 7.(a) (i) 3rd period, 16th group.

(ii) Z is a non-metal.

(iii) H_2Z

(iv) Covalent compound.

(b) (i) Electrovalent bond exists between M and O.

(ii) One electron is there in the outermost shell.

(iii) M belongs to first group or alkali metals.

(iv) $\text{M}^+ + \text{e}^- \longrightarrow \text{M}$ (at cathode).

(v) Oxygen gas is liberated at anode.

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) From the list given below, select the word(s) required to correctly complete blanks (i) to (v) in the following passage. The words from the list are to be used only once. Write the answers as (a) (i), (ii), (iii) and so on. Do not copy the passage.

[ammonia, ammonium carbonate, carbon dioxide, hydrogen, hydronium, hydroxide, precipitate, salt, water] [5]

- (i) A solution M turns blue litmus red, so it must contain (i) _____ ions; another solution O turns red litmus blue and hence, must contain (ii) _____ ions.
- (ii) When solutions M and O are mixed together, the products will be (iii) _____ and (iv) _____.
- (iii) If a piece of magnesium was put into a solution M, (v) _____ gas would be evolved.
- (b) Identify the gas evolved in the following reactions when : [5]
- (i) Sodium propionate is heated with soda lime.
- (ii) Potassium sulphite is treated with dilute hydrochloric acid.
- (iii) Sulphur is treated with concentrated nitric acid.
- (iv) A few crystals of KNO_3 are heated in a hard glass test tube.
- (v) Concentrated hydrochloric acid is made to react with manganese dioxide.
- (c) State one appropriate observation for each of the following : [5]
- (i) Concentrated sulphuric acid is added drop wise to a crystal of hydrated copper sulphate.
- (ii) Copper sulphide is treated with dilute hydrochloric acid.
- (iii) Excess of chlorine gas is reacted with ammonia gas.
- (iv) A few drops of dilute hydrochloric acid are added to silver nitrate solution, followed by addition of ammonium hydroxide solution.

(v) Electricity is passed through molten lead bromide.

- (d) Give suitable chemical terms for the following : [5]

(i) A bond formed by a shared pair of electrons with both electrons coming from the same atom.

(ii) A salt formed by incomplete neutralization of an acid by a base.

(iii) A reaction in which hydrogen of an alkane is replaced by a halogen.

(iv) A definite number of water molecules bound to some salts.

(v) The process in which a substance absorbs moisture from the atmospheric air to become moist, and ultimately dissolves in the absorbed water.

- (e) Give a chemical test to distinguish between the following pairs of compounds : [5]

(i) Sodium chloride solution and sodium nitrate solution.

(ii) Hydrogen chloride gas and hydrogen sulphide gas.

(iii) Ethene gas and ethane gas.

(iv) Calcium nitrate solution and zinc nitrate solution.

(v) Carbon dioxide gas and sulphur dioxide gas.

- (f) Choose the most appropriate answer from the following options : [10]

(i) Among the period 2 elements, the element which has high electron affinity is :

- (A) Lithium (B) Carbon
(C) Chlorine (D) Fluorine

(ii) Among the following compounds identify the compound that has all three bonds (ionic, covalent and coordinate bond).

- (A) Ammonia
(B) Ammonium chloride
(C) Sodium hydroxide
(D) Calcium chloride.

(iii) Identify the statement that is incorrect about alkanes :

- (A) They are hydrocarbons.
 (B) There is a single covalent bond between carbon and hydrogen.
 (C) They can undergo both substitution as well as addition reactions.
 (D) On complete combustion they produce carbon dioxide and water.

(iv) Which of these will act as a non-electrolyte ?

- (A) Liquid carbon tetrachloride
 (B) Acetic acid
 (C) Sodium hydroxide aqueous solution
 (D) Potassium chloride aqueous solution

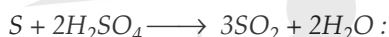
(v) Which one of the following will not produce an acid when made to react with water ?

- (A) Carbon monoxide (B) Carbon dioxide
 (C) Nitrogen dioxide (D) Sulphur trioxide

(vi) Identify the metallic oxide which is amphoteric in nature :

- (A) Calcium oxide (B) Barium oxide
 (C) Zinc oxide (D) Copper(II) oxide

(vii) In the given equation identify the role played by concentrated sulphuric acid



- (A) Non-volatile acid (B) Oxidising agent
 (C) Dehydrating agent (D) None of the above

(viii) Nitrogen gas can be obtained by heating :

- (A) Ammonium nitrate (B) Ammonium nitrite
 (C) Magnesium nitride (D) Ammonium chloride

(ix) Which of the following is not a typical property of an ionic compound ?

- (A) High melting point
 (B) Conducts electricity in the molten and in the aqueous solution state.
 (C) They are insoluble in water.
 (D) They exist as oppositely charged ions even in the solid state.

(x) The metals zinc and tin are present in the alloy :

- (A) Solder (B) Brass
 (C) Bronze (D) Duralumin

(g) Solve the following :

(i) What volume of oxygen is required to burn completely 90 dm³ of butane under similar conditions of temperature and pressure ?



(ii) The vapour density of a gas is 8. What would be the volume occupied by 24.0 g of the gas at STP ? [2]

(iii) A vessel contains X number of molecules of hydrogen gas at a certain temperature and pressure. How many molecules of nitrogen gas would be present in the same vessel under the same conditions of temperature and pressure ? [1]

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

(a)

| Group number | IA | IIA | IIIA | IVA | VA | VIA | VIIA | 0 |
|------------------------|----|-----|------|-----|----|-----|------|----|
| | 1 | 2 | 13 | 14 | 15 | 16 | 17 | 18 |
| 2 nd period | Li | | D | | | O | J | Ne |
| | A | Mg | E | Si | | H | M | |
| | R | T | I | | Q | u | | y |

- In this table H does not represent hydrogen.
- Some elements are given in their own symbol and position in the periodic table.
- While others are shown with a letter.

With reference to the table answer the following questions :

- (i) Identify the most electronegative element. [1]
 (ii) Identify the most reactive element of group 1. [1]
 (iii) Identify the element from period 3 with least atomic size. [1]
 (iv) How many valence electrons are present in Q ? [1]
 (v) Which element from group 2 would have the least ionization energy ? [1]
 (vi) Identify the noble gas of the fourth period. [1]
 (vii) In the compound between A and H what type of bond would be formed and give the molecular formula for the same. [2]

(b) Compare the compounds carbon tetrachloride and sodium chloride with regard to solubility in water and electrical conductivity. [2]

Question 3.

(a) Choosing the substances from the list given below, write balanced chemical equations for the reactions which would be used in the laboratory to obtain the following salts :

| | | |
|-----------------------|--------|----------------------|
| Dilute Sulphuric acid | Copper | Copper(II) carbonate |
| | Iron | Sodium carbonate |
| | Sodium | Sodium chloride |
| | | Zinc nitrate |

- (i) Sodium sulphate
(ii) Zinc carbonate
(iii) Copper(II) sulphate
(iv) Iron(II) sulphate.

[4]

- (b) State two relevant observations for each of the following :

[6]

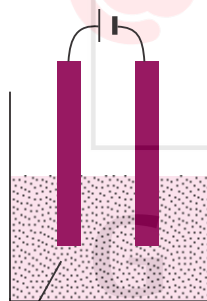
- (i) Ammonium hydroxide solution is added to copper (II) nitrate solution in small quantities and then in excess.
(ii) Ammonium hydroxide solution is added to zinc nitrate solution in minimum quantities and then in excess.
(iii) Lead nitrate crystals are heated in a hard glass test tube.

Question 4.

- (a) Copper sulphate solution is electrolysed using copper electrodes.

Study the diagram given below and answer the question that follows :

- (i) Which electrode to your left or right is known as the oxidising electrode and why? [2]
(ii) Write the equation representing the reaction that occurs. [1]
(iii) State two appropriate observations for the above electrolysis reaction. [2]



Copper (II) Sulphate Solution

(b)

| | X | Y |
|---------------------------------|---|---|
| Normal Electronic Configuration | 2, 8, 7 | 2, 8, 2 |
| Nature of oxide | Dissolves in water and turns blue litmus red. | Very low solubility in water. Dissolves in hydrochloric acid. |

| | | |
|---|--|--|
| Tendency for oxidising and reducing reactions | Tends to oxidise elements and compounds. | Tends to act as a reducing agent. |
| Electrical and Thermal conductivity | Very poor electrical conductor poor thermal conductivity. | Good electrical conductor good thermal conductor. |
| Tendency to form alloys and amalgams | No tendency to form alloys. | Forms alloys. |

Using the information above, complete the following : [5]

- (i) _____ is the metallic element.
(ii) Metal atoms tend to have a maximum of _____ electrons in the outermost energy level.
(iii) Non-metallic elements tend to form _____ oxides while metals tend to form _____ oxides.
(iv) Non-metallic elements tend to be _____ conductors of heat and electricity.
(v) Metals tend to _____ electrons and act as _____ agents in their reactions with elements and compounds.

Question 5.

- (a) Give balanced equations for each of the following :
(i) Reduction of hot copper (II) oxide to copper using ammonia gas.
(ii) Oxidation of carbon with concentrated nitric acid.
(iii) Dehydration of concentrated sulphuric acid with sugar crystals. [3]
(b) Copy and complete the following table relating to important industrial process :

| Name of the process | Temperature | Catalyst | Equation for the catalyzed reaction |
|---------------------|-------------|----------|-------------------------------------|
| Haber's process | | | |

[3]

- (c) The following questions relate to the extraction of aluminium by electrolysis : [4]
(i) Name the other aluminium containing compound added to alumina and state its significance.
(ii) Give the equation for the reaction that takes place at the cathode.
(iii) Explain why is it necessary to renew the anode periodically ?

Question 6.

(a) Give balanced equations for the laboratory preparations of the following organic compounds : [4]

- (i) A saturated hydrocarbon from iodomethane.
- (ii) An unsaturated hydrocarbon from an alcohol.
- (iii) An unsaturated hydrocarbon from calcium carbide.
- (iv) An alcohol from ethyl bromide.

(b) Give the structural formulae for the following : [3]

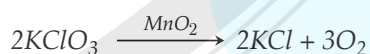
- (i) An isomer of *n*-butane.
- (ii) 2-propanol.
- (iii) Diethyl ether.

(c) Give reasons for the following : [3]

- (i) Methane does not undergo addition reactions, but ethene does.
- (ii) Ethyne is more reactive than ethane.
- (iii) Hydrocarbons are excellent fuels.

Question 7.

(a) O_2 is evolved by heating $KClO_3$ using MnO_2 as a catalyst



(i) Calculate the mass of $KClO_3$ required to produce 6.72 litre of O_2 at S.T.P. [atomic masses of K = 39, Cl = 35.5, O = 16]. [2]

(ii) Calculate the number of moles of oxygen present in the above volume and also the number of molecules. [2]

(iii) Calculate the volume occupied by 0.01 mole of CO_2 at S.T.P. [1]

(b) Identify the following substances which are underlined :

(i) An alkaline gas which produces dense white fumes when reacted with hydrogen chloride gas.

(ii) An acid which is present in vinegar.

(iii) A gas which does not conduct electricity in the liquid state but conducts electricity when dissolved in water.

(iv) A dilute mineral acid which forms a white precipitate when treated with barium chloride solution.

(v) The element which has the highest ionization potential. [5]

ANSWERS**SECTION-I****Answer 1.**

- (a) (i) Hydronium (ii) Hydroxide
(iii) Salt (iv) Water
(v) Hydrogen
- (b) (i) Ethane (ii) Sulphur dioxide
(iii) Nitrogen dioxide (iv) Oxygen
(v) Chlorine
- (c) (i) Crystals of hydrated copper sulphate turn into white amorphous copper sulphate powder.
(ii) Rotten egg smell of hydrogen sulphide gas will be given out. Hydrogen sulphide gas will be given out which smells like rotten eggs and turns moist blue litmus paper red.
(iii) Yellow coloured highly explosive liquid nitrogen trichloride and hydrogen chloride gas is given out.
(iv) A white precipitate of silver chloride is formed which dissolves in NH_4OH .
(v) Red coloured bromine vapours with high irritating smell evolve at anode and a white lead metal deposits at cathode.
- (d) (i) Co-ordinate bond (ii) Acid salt
(iii) Halogenation (iv) Water of crystallisation
(v) Deliquescence

(e) (i)

| Test | Sodium Chloride Solution | Sodium Nitrate Solution |
|--|--|--------------------------|
| On adding silver nitrate solution. | White ppt. of AgCl is formed which dissolves in NH_4OH . | No reaction takes place. |
| Test | Hydrogen Chloride Gas | Hydrogen Sulphide Gas |
| A rod dipped in ammonium hydroxide is brought near the gas. | Dense white fumes of ammonium chloride are formed. | No reaction takes place. |
| Test | Ethene | Ethane |
| On pouring few drops of bromine solution in carbon tetrachloride with the hydrocarbon. | The reddish brown bromine solution gets decolourised. | No change is observed. |

(iii)

(iv)

| Test | Calcium Nitrate Solution | Zinc Nitrate Solution |
|--|--|--|
| Ammonium hydroxide is added first dropwise and then in excess. | No precipitation of $\text{Ca}(\text{OH})_2$ occurs even with addition of excess of NH_4OH . | Gelatinous white ppt. of $\text{Zn}(\text{OH})_2$ is formed which is soluble in excess of NH_4OH . |

(v)

| Test | Carbon dioxide Gas | Sulphur dioxide Gas |
|--|------------------------|---|
| The gas is passed into acidified solution of orange coloured $\text{K}_2\text{Cr}_2\text{O}_7$ solution. | No change is observed. | Orange solution of $\text{K}_2\text{Cr}_2\text{O}_7$ turns green. |

- (f) (i) (D) Fluorine
(ii) (B) Ammonium chloride
(iii) (C) They can undergo both substitution as well as addition reactions.
(iv) (A) Liquid carbon tetrachloride
(v) (A) Carbon monoxide
(vi) (C) Zinc oxide
(vii) (B) Oxidising agent
(viii) (B) Ammonium nitrite
(ix) (C) They are insoluble in water
(x) (C) Bronze

- (g) (i) $2\text{C}_4\text{H}_{10} + 13\text{O}_2 \longrightarrow 8\text{CO}_2 + 10\text{H}_2\text{O}$
2 vol. 13 vol.
 \therefore 2 vol. of butane require 13 vol. of oxygen (according to Gay Lussac's Law)

\therefore 90 dm^3 of butane require $= \frac{13 \times 90}{2} = 585 \text{ dm}^3$
585 dm^3 of oxygen is required to burn 90 dm^3 of butane.

(ii) Given, (Vapour Density) V.D. = 8

\therefore Molecular weight = $2 \times \text{V.D.} = 2 \times 8 = 16$

No. of moles in 24.0 g of gas

$$= \frac{\text{Wt.}}{\text{Mol. wt}} = \frac{24.0}{16} = 1.5 \text{ moles}$$

At S.T.P., 1 mole of a gas occupies 22.4 l.

\therefore 1.5 moles (or 24.0 g) of the gas will occupy
 $= \frac{22.4 \times 1.5}{1} = 33.6 \text{ l.}$

(iii) 'X' number of molecules. (According to Avogadro's law)

SECTION-II

Answer 2.

- (a) (i) J (ii) R (iii) M (iv) Five (v) T
(vi) γ -Krypton
(vii) Ionic bond. Molecular formula $\rightarrow \text{A}_2\text{H}$

(b)

| S. No. | Carbon Tetrachloride (forms covalent bond) | Sodium Chloride (forms ionic bond) |
|-------------------------|--|--|
| Solubility in water | Insoluble in water. | Soluble in water. |
| Electrical conductivity | Non conductor of electricity. | Good conductor of electricity in molten state and in aqueous solution. |

Answer 3.

- (a) (i) $\text{Na}_2\text{CO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + \text{H}_2\text{O} + \text{CO}_2 \uparrow$
Sodium carbonate Dil. sulphuric acid Sodium sulphate
(ii) $\text{Zn}(\text{NO}_3)_2 + \text{Na}_2\text{CO}_3 \rightarrow \text{ZnCO}_3 + 2\text{NaNO}_3$
Zinc nitrate Sodium carbonate Zinc carbonate Sodium nitrate
(iii) $\text{CuCO}_3 + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O} + \text{CO}_2 \uparrow$
Copper carbonate Dil. sulphuric acid Copper (II) Sulphate
(iv) $\text{Fe} + \text{H}_2\text{SO}_4 \rightarrow \text{FeSO}_4 + \text{H}_2$
Iron Dil. Sulphuric acid Iron (II) sulphate

- (b) (i) Initially a light blue ppt. is formed which on addition of excess of ammonium hydroxide dissolves and a deep inky blue solution is formed.
(ii) Initially a white ppt. is formed which disappears (dissolves) in excess of ammonium hydroxide.
(iii) A reddish brown gas is evolved and a yellow residue is left in the test tube.

Answer 4.

- (a) (i) Electrode on the left side is the oxidising electrode because copper atoms lose electrons at this electrode. i.e., it is called anode.
(ii) At anode: $\text{Cu} - 2e^- \rightarrow \text{Cu}^{2+}$
At cathode: $\text{Cu}^{2+} + 2e^- \rightarrow \text{Cu}$

(iii) 1. Reddish brown copper metal is deposited at cathode so anode becomes thin and cathode grows thick gradually.

2. Blue colour of aqueous copper (II) sulphate solution remains unchanged because the effective concentration of copper ions in solution remains the same.

- (b) (i) Y (ii) eight
(iii) Acidic, Basic (iv) Bad
(v) Lose, Reducing

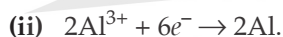
Answer 5.

- (a) (i) $3\text{CuO} + 2\text{NH}_3 \longrightarrow 3\text{Cu} + 3\text{H}_2\text{O} + \text{N}_2 \uparrow$
(ii) $\text{C} + 4\text{HNO}_3 \longrightarrow \text{CO}_2 + 2\text{H}_2\text{O} + 4\text{NO}_2 \uparrow$
(iii) $\text{C}_{12}\text{H}_{22}\text{O}_{11} \xrightarrow{\text{Conc. H}_2\text{SO}_4} 12\text{C} + 11\text{H}_2\text{O}$

(b)

| Name of process | Temperature | Catalyst | Equation for the catalysed reaction |
|-----------------|--------------|---------------------|--|
| Haber's process | (450–500) °C | Finely divided iron | $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3 + \text{Heat}$ |

- (c) (i) Cryolite. Molten cryolite acts as solvent for alumina and also lowers the fusion temperature from 2050°C to 950°C and enhances conductivity and thereby saves electrical energy.

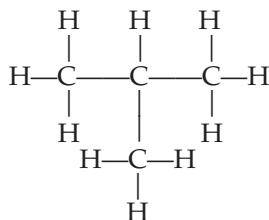


(iii) During electrolysis oxygen gas is formed at anode which oxidises graphite or carbon anode to carbon dioxide, so it is necessary to replace anode periodically.

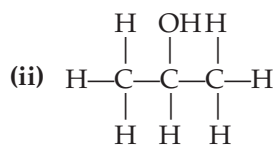
Answer 6.

- (a) (i) $\text{CH}_3\text{I} + 2[\text{H}] \xrightarrow[\text{C}_2\text{H}_5\text{OH}]{\text{Zn/Hg}} \text{CH}_4 + \text{HI}$
Iodomethane Methane
or methyl iodide
- (ii) $\text{C}_2\text{H}_5\text{OH} \xrightarrow[\text{Conc. H}_2\text{SO}_4]{170^\circ\text{C}} \text{C}_2\text{H}_4 + \text{H}_2\text{O}$
Ethanol Ethene
- (iii) $\text{CaC}_2 + 2\text{H}_2\text{O} \longrightarrow \text{Ca(OH)}_2 + \text{C}_2\text{H}_2$
Calcium carbide Ethyne
- (iv) $\text{C}_2\text{H}_5\text{Br} + \text{KOH(aq)} \longrightarrow \text{C}_2\text{H}_5\text{OH} + \text{KBr}$
Ethyl bromide Ethanol

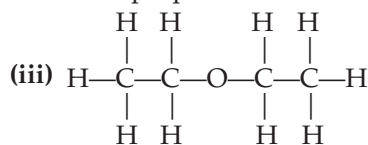
(b) (i)



2-methyl propane (an isomer of *n*-butane)



2-propanol



Diethyl ether

- (c) (i) Methane does not undergo addition reactions, but ethene does because methane is saturated hydrocarbon while ethene is an unsaturated hydrocarbon. Addition reactions are characteristic properties of unsaturated hydrocarbons.

(ii) Ethane is a saturated hydrocarbon, while ethyne is an unsaturated hydrocarbon with triple bond which can undergo addition reaction, hence is more reactive than ethane.

(iii) Hydrocarbons are excellent fuels because they ignite easily at low temperature and liberate large amount of heat without leaving any residue.

Answer 7.

- (a) (i) Molecular weight of KClO_3
 $= 39 + 35.5 + 16 \times 3 = 122.5$
 $2\text{KClO}_3 \longrightarrow 2\text{KCl} + 3\text{O}_2$
 2 moles 3 moles
 $2 \times 122.5 \text{ g}$ $3 \times 22.4 \text{ l at S.T.P}$
 $\therefore 3 \times 22.4 \text{ l of oxygen is produced from } 2 \times 122.5 \text{ g of KClO}_3$
 $\therefore 6.72 \text{ l of oxygen is produced from}$
 $\frac{2 \times 122.5 \times 6.72}{3 \times 22.4} = 24.5 \text{ g}$
 24.5 g of KClO_3 is required to produce 6.72 l of O_2 at S.T.P.
- (ii) At S.T.P., 22.4 l of a gas = 1 mole
 $\therefore 6.72 \text{ l} = \frac{1 \times 6.72}{22.4} = 0.3 \text{ moles}$
 One mole contains = 6×10^{23} molecules
 $\therefore 0.3 \text{ mole contains} = 6 \times 10^{23} \times 0.3$
 $= 1.8 \times 10^{23} \text{ molecules.}$
 6.72 l of oxygen contains 0.3 moles and hence contains 1.8×10^{23} molecules.
- (iii) At S.T.P., one mole of CO_2 occupies 22.4 l
 $\therefore 0.01 \text{ mole of CO}_2 \text{ occupies}$
 $= 22.4 \times 0.01 = 0.224 \text{ l}$
 0.01 mole of CO_2 will occupy 0.224 l at S.T.P.

- (b) (i) Ammonia (ii) Acetic acid
(iii) Hydrogen chloride gas
(iv) Dilute sulphuric acid (v) Helium

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

(a) Name the gas in each of the following : [5]

(i) The gas evolved on reaction of aluminium with boiling concentrated caustic alkali solution.

(ii) The gas produced when excess ammonia reacts with chlorine.

(iii) A gas which turns acidified potassium dichromate clear green.

(iv) The gas produced when copper reacts with concentrated nitric acid.

(v) The gas produced on reaction of dilute sulphuric acid with a metallic sulphide.

(b) State one observation for each of the following : [5]

(i) Excess ammonium hydroxide solution is added to lead nitrate solution.

(ii) Bromine vapours are passed into a solution of ethyne in carbon tetrachloride.

(iii) A zinc granule is added to copper sulphate solution.

(iv) Zinc nitrate crystals are strongly heated.

(v) Sodium hydroxide solution is added to ferric chloride solution at first a little and then in excess.

(c) Some word/words are missing in the following statements. You are required to rewrite the statements in the correct form using the appropriate word/words : [5]

(i) Ethyl alcohol is dehydrated by sulphuric acid at a temperature of about 170°C.

(ii) Aqua regia contains one part by volume of nitric acid and three parts by volume of hydrochloric acid.

(iii) Magnesium nitride reacts with water to liberate ammonia.

(iv) Cations migrate during electrolysis.

(v) Magnesium reacts with nitric acid to liberate the hydrogen gas.

(d) Choose the correct answer from the options given below : [5]

(i) An element in period-3 whose electron affinity is zero.

(A) Neon

(C) Sodium

(ii) An alkaline earth metal.

(A) Potassium

(C) Lead

(iii) The vapour density of carbon dioxide [C = 12, O = 16]

(A) 12

(C) 44

(iv) Identify the weak electrolyte from the following :

(A) Sodium chloride solution

(B) Dilute hydrochloric acid

(C) Dilute sulphuric acid

(D) Aqueous acetic acid

(v) Which of the following metallic oxides cannot be reduced by normal reducing agents ?

(A) Magnesium oxide

(B) Copper(II) oxide

(C) Zinc oxide

(D) Iron(III) oxide

(e) Match the following : [5]

| Column A | Column B |
|--------------------------------|--------------------------------|
| 1. Acid salt | A. Ferrous ammonium sulphate |
| 2. Double salt | B. Contains only ions |
| 3. Ammonium hydroxide solution | C. Sodium hydrogen sulphate |
| 4. Dilute hydrochloric acid | D. Contains only molecules |
| 5. Carbon tetrachloride | E. Contains ions and molecules |

(f) Give the structural formula for the following :

(i) Methanoic acid

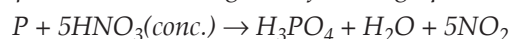
(ii) Ethanal

(iii) Ethyne

(iv) Acetone

(v) 2-methyl propane.

(g) Concentrated nitric acid oxidises phosphorus to phosphoric acid according to the following equation : [5]



If 9.3 g of phosphorus was used in the reaction, calculate :

- (i) Number of moles of phosphorus taken. [1]
- (ii) The mass of phosphoric acid formed. [2]
- (iii) The volume of nitrogen dioxide produced at S.T.P.

[H = 1, N = 14, P = 31, O = 16] [2]

(h) Give reasons for the following : [5]

- (i) Iron is rendered passive with fuming nitric acid.
- (ii) An aqueous solution of sodium chloride conducts electricity.
- (iii) Ionization potential of the element increases across a period.
- (iv) Alkali metals are good reducing agents.
- (v) Hydrogen chloride gas cannot be dried over quick lime.

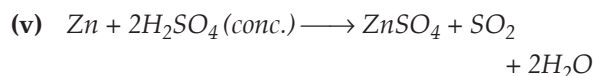
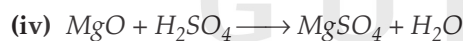
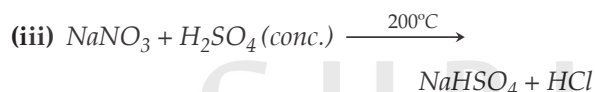
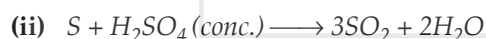
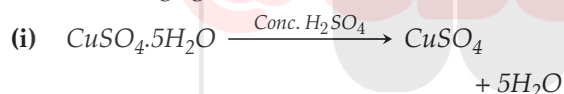
SECTION-II (40 Marks)

Attempt any four questions from this Section.

Question 2.

(a) Some properties of sulphuric acid are listed below. Choose the role played by sulphuric acid as A, B, C or D which is responsible for the reactions (i) to (v). Some role/s may be repeated. [5]

- (A) Dilute acid
- (B) Dehydrating agent
- (C) Non-volatile acid
- (D) Oxidising agent.



(b) Give balanced equations for the following reactions :

- (i) Dilute nitric acid and copper carbonate. [5]
- (ii) Concentrated hydrochloric acid and potassium permanganate solution.
- (iii) Ammonia and oxygen in the presence of a catalyst.
- (iv) Silver nitrate solution and sodium chloride solution.
- (v) Zinc sulphide and dilute sulphuric acid.

Question 3.

(a) Select the correct answer from the list given in brackets : [5]

(i) An aqueous electrolyte consists of the ions mentioned in the list, the ion which could be discharged most readily during electrolysis.
[Fe²⁺, Cu²⁺, Pb²⁺, H⁺].

(ii) The metallic electrode which does not take part in an electrolytic reaction. [Cu, Ag, Pt, Ni].

(iii) The ion which is discharged at the cathode during the electrolysis of copper sulphate solutions using copper electrodes as anode and cathode.

[Cu²⁺, OH⁻, SO₄²⁻, H⁺].

(iv) When dilute sodium chloride is electrolysed using graphite electrodes, the cation is discharged at the cathode most readily. [Na⁺, OH⁻, H⁺, Cl⁻]

(v) During silver plating of an article using potassium argentocyanide as an electrolyte, the anode material should be [Cu, Ag, Pt, Fe]. [5]

(b) Match the properties and uses of alloys in List I with the appropriate answer from List 2 : [5]

| | List 1 | List 2 |
|-------|--|--------------------|
| (i) | The alloy contains Cu and Zn, is hard, silvery and is used in decorative articles. | A. Duralumin |
| (ii) | It is stronger than aluminium, light and is used in making light tools. | B. Brass |
| (iii) | It is lustrous, hard, corrosion resistant and used in surgical instruments. | C. Bronze |
| (iv) | Tin lowers the melting point of the alloy and is used for soldering purpose. | D. Stainless steel |
| (v) | The alloy is hard, brittle, takes up polish and is used for making statues. | E. Solder |

Question 4.

(a) Identify the anion present in the following compounds : [4]

(i) Compound X on heating with copper turnings and concentrated sulphuric acid liberates a reddish brown gas.

(ii) When a solution of compound Y is treated with silver nitrate solution a white precipitate is obtained which is soluble in excess of ammonium hydroxide solution.

(iii) Compound Z which on reacting with dilute sulphuric acid liberates a gas which turns lime water milky, but the gas has no effect on acidified potassium dichromate solution.

(iv) Compound L on reacting with barium chloride solution gives a white precipitate insoluble in dilute hydrochloric acid or dilute nitric acid.

(b) State one chemical test between each of the following pairs : [3]

(i) Sodium carbonate and sodium sulphite.

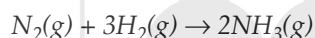
(ii) Ferrous nitrate and lead nitrate

(iii) Manganese dioxide and copper (II) oxide.

(c) Draw an electron dot diagram to show the structure of hydronium ion. State the type of bonding present in it. [3]

Question 5.

(a) (i) 67.2 litre of hydrogen combines with 44.8 litres of nitrogen to form ammonia under specific conditions as :



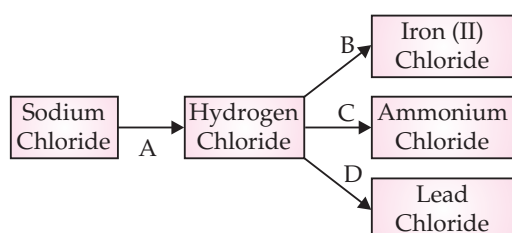
Calculate the volume of ammonia produced. What is the other substance, if any, that remains in the resultant mixture ? [2]

(ii) The mass of 5.6 dm^3 of a certain gas at S.T.P. is 12.0 g. Calculate the relative molecular mass of the gas. [2]

(iii) Find the total percentage of magnesium in magnesium nitrate crystals, $\text{Mg}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$.

[Mg = 24, N = 14, O = 16 and H = 1] [2]

(b) Refer to the flow chart diagram below and give balanced equations with conditions, if any, for the following conversions A to D. [4]



Question 6.

(a) Name the following metals : [3]

(i) A metal present in cryolite other than sodium.

(ii) A metal which is unaffected by dilute or concentrated acids.

(iii) A metal present in period 3, group 1 of the periodic table.

(b) The following questions are relevant to the extraction of aluminium : [3]

(i) State the reason for addition of caustic alkali to bauxite ore during purification of bauxite.

(ii) Give a balanced chemical equation for the above reaction.

(iii) Alongwith cryolite and alumina, another substance is added to the electrolyte mixture. Name the substance and give one reason for the addition.

(c) The following questions are based on the preparation of ammonia gas in the laboratory : [3]

(i) Explain why ammonium nitrate is not used in the preparation of ammonia.

(ii) Name the compound normally used as a drying agent during the process.

(iii) How is ammonia gas collected ?

(iv) Explain why it is not collected over water ? [4]

Question 7.

(a) From the following organic compounds given below, choose one compound in each case which relates to the description [i] to [iv] :

[Ethyne, ethanol, acetic acid, ethene, methane] [4]

(i) An unsaturated hydrocarbon used for welding purposes.

(ii) An organic compound whose functional group is carboxyl.

(iii) A hydrocarbon which on catalytic hydrogenation gives a saturated hydrocarbon.

(iv) An organic compound used as a thermometric liquid.

(b) (i) Why is pure acetic acid known as glacial acetic acid ?

(ii) Give a chemical equation for the reaction between ethyl alcohol and acetic acid. [2]

(c) There are three elements E, F, G with atomic numbers 19, 8 and 17 respectively.

(i) Classify the elements as metals and non-metals. [3]

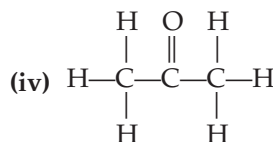
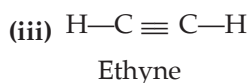
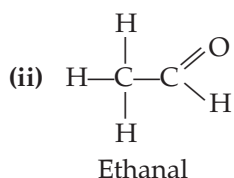
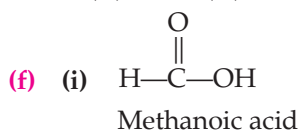
(ii) Give the molecular formula of the compound formed between E and G and state the type of chemical bond in this compound. [1]

ANSWERS

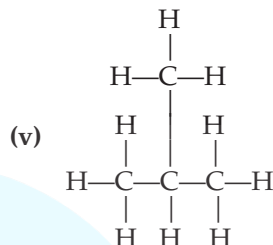
SECTION-I

Answer 1.

- (a) (i) Hydrogen gas
 (ii) Nitrogen gas
 (iii) Sulphur dioxide gas
 (iv) Nitrogen dioxide gas
 (v) Hydrogen sulphide gas
- (b) (i) A white ppt. of lead hydroxide is formed which is soluble in excess of NH_4OH .
 (ii) A colourless solution is obtained and brown colour of bromine vapours disappears.
 (iii) A red metal starts precipitating and the blue colour of the copper sulphate solution fades due to the formation of colourless zinc sulphate.
 (iv) A reddish brown gas is liberated.
 (v) A reddish brown ppt. of ferric hydroxide is formed which remains insoluble in excess of sodium hydroxide.
- (c) (i) Ethyl alcohol is dehydrated by concentrated sulphuric acid at a temperature of about 170°C to form ethylene.
 (ii) Aqua regia contains a mixture of one part by volume of concentrated nitric acid and three parts by volume of concentrated hydrochloric acid.
 (iii) Magnesium nitride reacts with warm water to liberate ammonia.
 (iv) Cations migrate to cathode during electrolysis.
 (v) Magnesium reacts with very dilute and cold nitric acid to liberate hydrogen gas.
- (d) (i) (D) Argon (ii) (B) Calcium
 (iii) (D) 22
 (iv) (D) Aqueous acetic acid
 (v) (A) Magnesium oxide
- (e) 1. (C), 2. (A), 3. (E), 4. (B), 5. (D)



Acetone



2-methyl propane

- (g) (i) Number of moles

$$= \frac{\text{Given weight}}{\text{Molecular wt. of substance}}$$

$$= \frac{9.3}{31} = 0.3$$

0.3 moles of phosphorus is taken.

- (ii) Molecular weight of H_3PO_4
 $= (1 \times 3) + (31) + (4 \times 16)$
 $= 3 + 31 + 64 = 98 \text{ g}$
 $\therefore 31 \text{ g of phosphorus gives } 98 \text{ g of phosphoric acid}$
 $\therefore 9.3 \text{ g of phosphorus gives}$
 $= \frac{98 \times 9.3}{31}$
 $= 29.4 \text{ g of phosphoric acid}$

- (iii) From the equation :

1 mole of phosphorus liberates 5 moles of nitrogen dioxide

$$0.3 \text{ mole of phosphorus liberates}$$

$$= 5 \times 0.3$$

$$= 1.5 \text{ moles of } \text{NO}_2$$

Now, at S.T.P. 1 mole of NO_2 occupies 22.4 l .

$$\therefore 1.5 \text{ mole of } \text{NO}_2 \text{ occupies}$$

$$= 22.4 \times 1.5 = 33.6 \text{ l}$$

- (h) (i) Due to the formation of a thin protective layer of insoluble iron oxide (Fe_3O_4) which stops the reaction.
 (ii) An aqueous solution of sodium chloride conducts electricity because in aqueous solution, Na^+ and Cl^- ions become free and mobile.
 (iii) Ionization potential of the element increases across a period because across a period, atomic

size decreases and nuclear charge increases, so more energy is required to remove a valence electron.

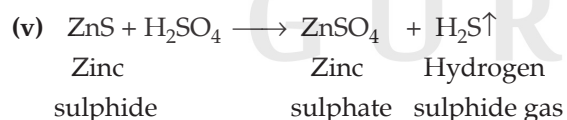
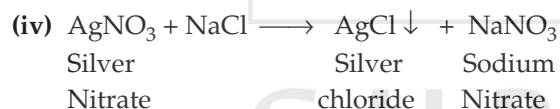
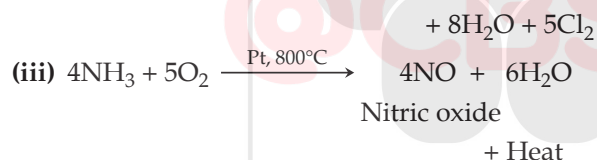
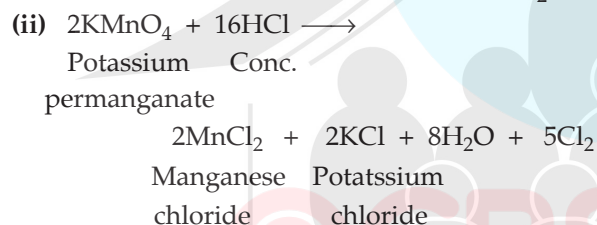
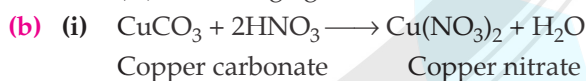
(iv) Alkali metals are good reducing agents because they combine exothermically with electronegative elements to form very stable compounds.

(v) Hydrogen chloride gas cannot be dried over quick lime because quick lime is basic in nature and combines with moist hydrogen chloride gas to form calcium chloride.

SECTION-II

Answer 2.

- (a) (i) (B) Dehydrating agent
(ii) (D) Oxidising agent
(iii) (C) Non-volatile acid
(iv) (A) Dilute acid
(v) (D) Oxidising agent



Answer 3.

- (a) (i) Cu^{2+} (ii) Pt
(iii) Cu^{2+} at cathode (iv) H^+
(v) Ag (Pure silver)
- (b) (i) B (ii) A (iii) D
(iv) E (v) C

Answer 4.

- (a) (i) NO_3^- ion, (ii) Cl^- ion,
(iii) CO_3^{2-} ion, (iv) SO_4^{2-} ion

(b) (i) Sodium carbonate when treated with dil. H_2SO_4 will liberate colourless odourless gas with brisk effervescence. The gas will turn lime water milky and will have no effect on acidified potassium permanganate solution.

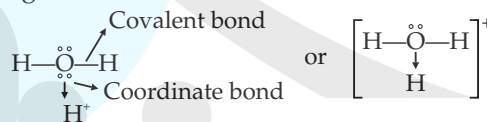
Sodium sulphite when treated with dil. H_2SO_4 will liberate a colourless gas having suffocating smell of burning sulphur. The gas will turn acidified potassium permanganate solution from pink to colourless.

(ii) Aqueous ferrous nitrate when treated with NaOH solution gives a dirty green ppt. and is insoluble in excess of NaOH.

Aqueous lead nitrate when treated with NaOH solution gives a white ppt. which dissolves in excess of NaOH.

(iii) When manganese dioxide is heated with conc. HCl, a pungent smelling greenish yellow chlorine gas is evolved which turns iodide paper blue-black.

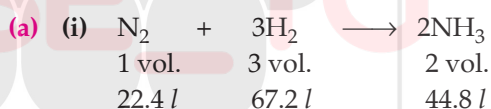
When copper oxide is heated with conc. HCl, no such gas is evolved.



Structure of hydronium ion

The type of bonding in hydronium ion is coordinate bonding.

Answer 5.



According to Gay-Lussac's law :

3 volumes of H_2 will give 2 vol. of NH_3 .

\therefore 67.2 l of H_2 will give

$$= \frac{2 \times 67.2}{3} \\ = 44.8 \text{ l of } \text{NH}_3$$

At the same time

3 vol. of H_2 will react with 1 vol. of N_2

\therefore 67.2 l of H_2 will react

$$= \frac{1}{3} \times 67.2 \\ = 22.4 \text{ l of } \text{N}_2$$

\therefore (44.8 - 22.4) = 22.4 l of N_2 will be left unreacted in the mixture.

(ii) According to molar volume concept, weight of 22.4 l of a gas at S.T.P. is equal to molecular mass of the gas. Now,

∴ 5.6 l of gas at S.T.P. weight 12.0 g

∴ 22.4 l of gas at S.T.P. weight

$$= \frac{12 \times 22.4}{5.6} = 48 \text{ g}$$

Hence, molecular mass of the gas is 48 g.

(iii) Relative molecular mass of $\text{Mg}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$

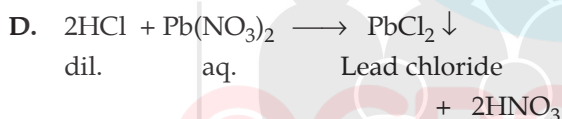
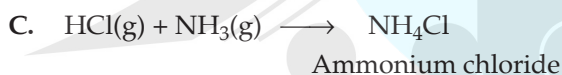
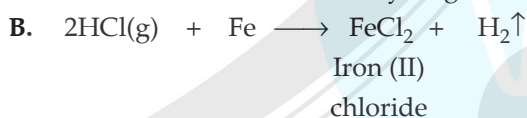
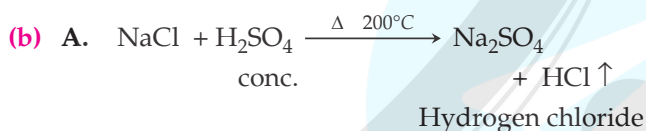
$$= (24) + (14 \times 2) + (16 \times 6) + (12 \times 1) + (6 \times 16) + (6 \times 16)$$

$$= 24 + 28 + 96 + 12 + 96 = 256$$

Amount of Mg in 256 g of magnesium nitrate is 24 g

∴ % of Mg in $\text{Mg}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$

$$= \frac{24}{256} \times 100 = 9.38\%$$

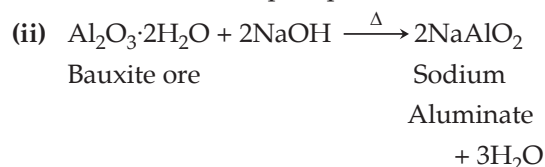


Answer 6.

- (a) (i) Aluminium
(ii) Platinum
(iii) Sodium

(b) (i) **Caustic alkali** : Caustic soda or sodium hydroxide dissolves aluminium oxide forming

soluble sodium aluminate while impurities remain insoluble and precipitate as red mud.



(iii) The name of substance is Fluorspar (CaF_2) and it increases conductivity of the electrolyte, since alumina is almost a non-conductor of electricity.

(c) (i) Pure acetic acid is known as glacial acetic acid because ammonium nitrate is explosive in nature and dissociates into nitrous oxide and water on heating.

(ii) Quick lime or calcium oxide (CaO).

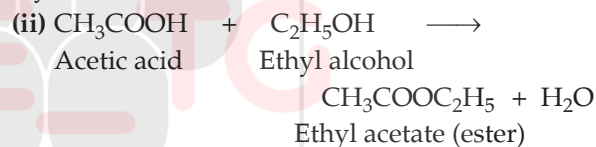
(iii) By downward displacement of air.

(iv) Ammonium nitrate is not collected over water because it is highly soluble in water.

Answer 7.

(a) (i) Ethyne, (ii) Acetic acid, (iii) Ethene, (iv) Ethanol.

(b) (i) Ammonium nitrate is not used in the preparation of ammonia because on cooling below its melting point (17°C) or below room temperature, it solidifies and forms little ice-like crystals.



(c) (i) $_{19}\text{E}$ is a metal.
 $_{8}\text{F}$ and $_{17}\text{G}$ are non-metals.

(ii) Molecular formula—EG.
Type of bond—Ionic bond.

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Choose from the following list of substances, as to what matches the description from (i) to (v) given below :

[5]

[Acetylene gas, aqua fortis, coke, brass, barium chloride, bronze, platinum].

- (i) An aqueous salt solution used for testing sulphate radical.
 (ii) A catalyst used in the manufacture of nitric acid by Ostwald's process.
 (iii) A black powdery substance used for the reduction of zinc oxide during its extraction.
 (iv) A gaseous hydrocarbon commonly used for welding purposes.
 (v) The substance is an alloy of zinc, copper and tin.

- (b) What would you observe in each of the following cases ?

[5]

- (i) Ammonium hydroxide is first added in a small quantity and then in excess to a solution of copper sulphate.
 (ii) Sugar crystals are added to a hard glass test tube containing concentrated sulphuric acid.
 (iii) Copper is heated with concentrated nitric acid in a hard glass test tube.
 (iv) Water is added to the product formed, when aluminium is burnt in a jar of nitrogen gas.
 (v) When carbon monoxide is passed over heated copper oxide.

- (c) Give reasons as to why :

[5]

- (i) the electrolysis of acidulated water is considered to be an example of catalysis.
 (ii) almost 90% of all known compounds are organic in nature.
 (iii) it is dangerous to burn methane in an insufficient supply of air.
 (iv) hydrogen chloride can be termed as a polar covalent compound.
 (v) the oxidising power of elements increases on moving from left to right along a period in the periodic table.

- (d) Fill in the blanks from the choices given below :

[5]

(i) In covalent compounds, the bond is formed due to the (sharing/transfer) of electrons.

(ii) Electrovalent compounds have a..... (low/high) boiling point.

(iii) A molecule of.....contains a triple bond. (hydrogen, ammonia, nitrogen).

(iv) Across a period, the ionization potential..... (increases, decreases, remains same).

(v) Down the group, electron affinity..... (increases, decreases, remains same).

- (e) (i) Calculate the volume of 320 g of SO_2 at S.T.P. (Atomic mass : S = 32 and O = 16).

(ii) State Gay-Lussac's Law of combining volumes.

(iii) Calculate the volume of oxygen required for the complete combustion of 8.8 g of propane (C_3H_8). (Atomic mass : C = 14, O = 16, H = 1, Molar Volume = 22.4 dm^3 at S.T.P.)

[5]

- (f) Choose the correct answer from the options given below :

[10]

(i) This metal is a liquid at room temperature :

- (A) Potassium (B) Zinc
 (C) Gold (D) Mercury

(ii) Hydroxide of this metal is soluble in sodium hydroxide solution :

- (A) Magnesium (B) Lead
 (C) Silver (D) Copper

(iii) In the periodic table alkali metals are placed in the group :

- (A) 1 (B) 11
 (C) 17 (D) 18

(iv) Hydrogen chloride gas being highly soluble in water is dried by :

- (A) Anhydrous calcium chloride
 (B) Phosphorous penta oxide
 (C) Quick lime
 (D) Concentrated sulphuric acid

(v) The brown ring test is used for detection of :

- (A) CO_3^{2-} (B) NO_3^-
 (C) SO_3^{2-} (D) Cl^-

(vi) When dilute sulphuric acid reacts with iron sulphide, the gas evolved is :

- (A) Hydrogen sulphide
 (B) Sulphur dioxide
 (C) Sulphur trioxide
 (D) Vapour of sulphuric acid

(vii) The functional group present in acetic acid is :

- (A) Ketonic $>C=O$ (B) Hydroxyl $-OH$
(C) Aldehydic $-CHO$ (D) Carboxyl $-COOH$

(viii) The unsaturated hydrocarbons undergo :

- (A) a substitution reaction
(B) an oxidation reaction
(C) an addition reaction
(D) none of the above

(ix) The number of C–H bonds in ethane molecule are :

- (A) Four (B) Six
(C) Eight (D) Ten

(x) Which of the following properties do not match with elements of the halogen family ?

- (A) They have seven electrons in their valence shell.
(B) They are highly reactive chemically.
(C) They are metallic in nature.
(D) They are diatomic in their molecular form.

(g) Write the balanced chemical equation for each of the following reactions : [5]

(i) Sodium thiosulphate is reacted with dilute hydrochloric acid.

(ii) Calcium bicarbonate reacts with dilute hydrochloric acid.

(iii) Dilute sulphuric acid is poured over sodium sulphite.

(iv) Lead nitrate solution is added to sodium chloride solution.

(v) Zinc is heated with sodium hydroxide solution.

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

- (a) Differentiate between electrical conductivity of copper sulphate solution and copper metal. [3]
(b) Sodium hydroxide solution is added to the solutions containing the ions mentioned in List X. List Y gives the details of the precipitate. Match the ions with their coloured precipitates. [3]

| List X | List Y |
|-----------------|------------------------------|
| (i) Pb^{2+} | A. Reddish brown |
| (ii) Fe^{2+} | B. White insoluble in excess |
| (iii) Zn^{2+} | C. Dirty green |
| (iv) Fe^{3+} | D. White soluble in excess |
| (v) Cu^{2+} | E. White soluble in excess |
| (vi) Ca^{2+} | F. Blue |

(c) During the electrolysis of copper (II) sulphate solution using platinum as cathode and carbon as anode :

(i) What do you observe at the cathode and at the anode ? [1]

(ii) What change is noticed in the electrolyte ? [1]

(iii) Write the reactions at the cathode and at the anode. [2]

Question 3.

(a) Answer the following questions : [5]

(i) Name a metal which is found abundantly in the earth's crust.

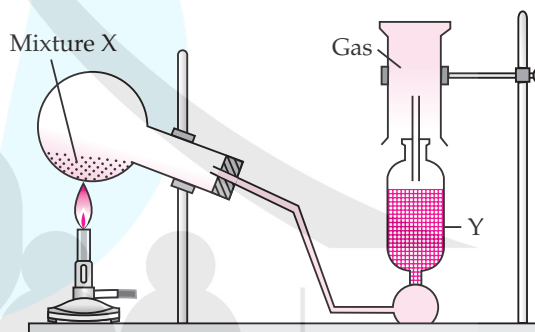
(ii) What is the difference between calcination and roasting ?

(iii) Name the process used for the enrichment of sulphide ore.

(iv) Write the chemical formulae of one main ore of iron and aluminium.

(v) Write the constituents of electrolyte for the extraction of aluminium.

(b) The diagram shows an experimental set up for the laboratory preparation of a pungent smelling gas. The gas is alkaline in nature. [5]



(i) Name the gas collected in the jar.

(ii) Write the balanced equation for the above preparation.

(iii) How is the gas being collected ?

(iv) Name the drying agent used.

(v) How will you find that the jar is full of gas ?

Question 4.

(a) An organic compound with vapour density = 94 contains

C = 12.67%, H = 2.13%, and Br = 85.11%. Find the molecular formula.

[Atomic mass : C = 12, H = 1, Br = 80] [3]

(b) Calculate the mass of

(i) 10^{22} atoms of sulphur.

(ii) 0.1 mole of carbon dioxide.

[Atomic mass : S = 32, C = 12 and O = 16 and Avogadro's Number = 6×10^{23}] [2]

(c) In the laboratory preparation of hydrochloric acid, HCl gas is dissolved in water. [5]

(i) Draw a diagram to show the arrangement used for the absorption of HCl in water.

(ii) Why is such an arrangement necessary ? Give two reasons.

(iii) Write the chemical equations for the laboratory preparation of HCl gas when the reactants are :

- (A) below 200°C
(B) above 200°C

Question 5.

(a) Choose the correct word/phrase from within the brackets to complete the following sentences : [5]

(i) The catalyst used for conversion of ethene to ethane is commonly (nickel/iron/cobalt).

(ii) When acetaldehyde is oxidized with acidified potassium dichromate, it forms.....
(ester/ethanol/acetic acid).

(iii) Ethanoic acid reacts with ethanol in presence of concentrated H_2SO_4 , so as to form a compound and water. The chemical reaction which takes place is called.....
(dehydration/ hydrogenation/ esterification)

(iv) Write the equation for the reaction taking place between 1, 2-dibromoethane and alcoholic potassium hydroxide.

(v) The product formed when ethene gas reacts with water in the presence of sulphuric acid is.....
(ethanol/ethanal/ethanoic acid).

(b) Write balanced chemical equations for the following : [5]

(i) Monochloro ethane is hydrolysed with aqueous KOH.

(ii) A mixture of sodalime and sodium acetate is heated.

(iii) Ethanol under high pressure and low temperature is treated with acidified potassium dichromate.

(iv) Water is added to calcium carbide.

(v) Ethanol reacts with sodium at room temperature.

Question 6.

(a) (i) With the help of equations, give an outline for the manufacture of sulphuric acid by the contact process.

(ii) What property of sulphuric acid is shown by the reaction of concentrated sulphuric acid when heated with

- (A) Potassium nitrate (B) Carbon ? [5]

(b) (i) What is the special feature of the apparatus that is used in the laboratory preparation of nitric acid ?

(ii) Why should the temperature of the reaction mixture of nitric acid not be allowed to rise above 200°C ? [2]

(c) Write balanced chemical equations for the following : [3]

(i) Chlorine reacts with excess of ammonia.

(ii) Ferric hydroxide reacts with nitric acid.

(iii) Zinc oxide dissolves in sodium hydroxide.

Question 7.

(a) (i) Give the number of the group and the period, of the element having three shells with three electrons in valence shell.

(ii) By drawing an electron dot diagram, show the lone pair effect leading to the formation of ammonium ion from ammonia gas and hydrogen ion.

(iii) What happens to the crystals of washing soda when exposed to air ? Name the phenomenon exhibited. [5]

(b) Name the method used for preparation of the following salts from the list given below :

(i) Sodium nitrate

(ii) Iron (III) chloride

(iii) Lead chloride

(iv) Zinc sulphate

(v) Sodium hydrogen sulphate

List :

- (A) Simple displacement
(B) Neutralization
(C) Decomposition by acid
(D) Double decomposition
(E) Direct synthesis. [5]

ANSWERS

SECTION-I

Answer 1.

- (a) (i) Barium Chloride (ii) Platinum
(iii) Coke (iv) Acetylene
(v) Bronze

(b) (i) First a light blue ppt. appears then ppt. dissolves and solution turns inky blue.

(ii) Sugar crystals first turn brown then to a black spongy mass. Steam is also evolved.

(iii) A reddish brown pungent smelling gas is evolved.

(iv) A colourless gas with characteristic pungent smell of ammonia is formed.

(v) Black powdery copper oxide changes to red shiny copper metal.

(c) (i) It is because during electrolysis of acidulated water, quantity of acid present remains unchanged throughout and the rate of electrolysis of water gets increased.

(ii) It is because in all the living world compounds are mainly made of carbon and hydrogen and carbon has the ability to form maximum number of compounds than those of other elements put together.

(iii) It is because it will form carbon monoxide which is poisonous in nature.

(iv) It is because there is large difference between electro negativities of H and Cl.

(v) It is because on moving from left to right along a period in the periodic table, the electron affinity of elements increases.

- (d) (i) Sharing (ii) High
(iii) Nitrogen (iv) Increases
(v) Decreases
- (e) (i) Gram molar mass of SO_2
 $= 32 + (2 \times 16) = 64 \text{ g.}$

No. of moles in 64 g = 1 mole

\therefore No. of moles in 320 g of SO_2

$$= \frac{320}{64} = 5 \text{ moles}$$

At S.T.P. 1 mole of SO_2 occupies 22.4 l

\therefore 5 moles of SO_2 will occupy $5 \times 22.4 = 112 \text{ l}$

(ii) **Gay-Lussac's Law of combining volumes:**
Under same conditions of temperature and pressure, the volume of gases taking part in a chemical reaction show simple whole number ratio to one another and to the volume of products if gaseous.

(iii) Chemical equation for the complete combustion of propane is :



1 mole 5 mole

1 mole $5 \times 22.4 \text{ l}$ at S.T.P.

$(12 \times 3) + (1 \times 8) = 44 \text{ g}$

Molecular weight of C_3H_8

$$= 12 \times 3 + 1 \times 8$$

$$= 44 \text{ g}$$

44 g of C_3H_8 requires $= 5 \times 22.4 \text{ l}$ of oxygen

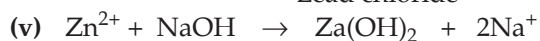
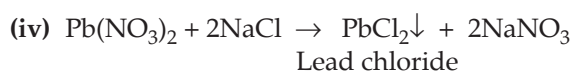
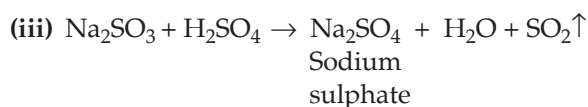
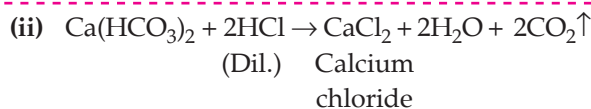
$$1 \text{ g of } \text{C}_3\text{H}_8 \text{ requires } = \frac{5 \times 22.4}{44}$$

\therefore 8.8 g of propane would require

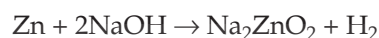
$$\frac{5 \times 22.4 \times 8.8}{44} = 22.4 \text{ l of oxygen.}$$

- (f) (i) (D) Mercury (ii) (B) Lead
(iii) (A) 1
(iv) (D) Concentrated sulphuric acid
(v) (B) NO_3^-
(vi) (A) Hydrogen sulphide
(vii) (D) Carboxyl $-\text{COOH}$
(viii) (C) An addition reaction
(ix) (B) Six
(x) (C) They are metallic in nature.

- (g) (i) $\text{Na}_2\text{S}_2\text{O}_3 + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{SO}_2\uparrow$
 (Dil.) Sodium chloride
 $+ \text{H}_2\text{O} + \text{S}\downarrow$



OR



SECTION-II

Answer 2.

- (a) Difference between electrical conductivity of copper sulphate solution and copper metal :

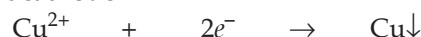
| | Copper sulphate solution | Copper metal |
|----|--|--|
| 1. | Electric current is by flow of ions. | Electric current is by flow of electrons. |
| 2. | It is aqueous solution of ionic compound. | It is a metal in solid state. |
| 3. | Copper sulphate undergoes a chemical change. | Copper metal remains unchanged chemically. |

(b)

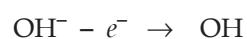
| List X | List Y |
|------------------------|-------------------------------|
| (i) Pb^{2+} | D. White soluble in excess. |
| (ii) Fe^{2+} | C. Dirty green. |
| (iii) Zn^{2+} | E. White soluble in excess. |
| (iv) Fe^{3+} | A. Reddish brown. |
| (v) Cu^{2+} | F. Blue. |
| (vi) Ca^{2+} | B. White insoluble in excess. |

- (c) (i) At cathode, reddish brown shiny metal deposits are seen. At anode, bubbles of a colourless odourless gas seems to come out.
(ii) Colour of electrolyte gradually fades from blue to colourless because effective concentration of copper ions in solution decreases.

(iii) At cathode :



At anode :



(a) (i) Aluminium.

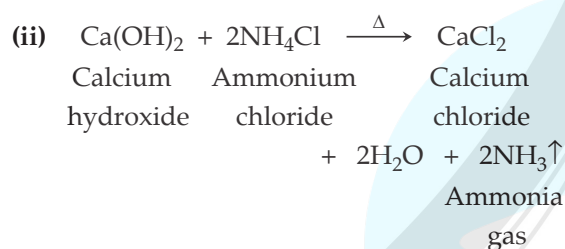
(iii) Froth floatation process.

(iv) Main ore of iron \rightarrow Haematite – Fe_2O_3 .

Main ore of aluminium \rightarrow Bauxite $- \text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$.

(v) Molten alumina + cryolite + fluorspar.

(b) (i) Ammonia.



(iii) By downward displacement of air because it is lighter than air.

(iv) Quick lime (CaO).

(v) By bringing a wet red litmus paper near the brim (mouth) of the gas jar. When jar is full of gas, litmus will turn blue.

Answer 4.

(a)

| Elements | Percentage ratio | Atomic mass | Relative number of atoms | Simplest ratio |
|----------|------------------|-------------|--------------------------|--------------------------------|
| C | 12.67 | 12 | $12.67/12 = 1.055$ | $\frac{1.055}{1.055} = 1$ |
| H | 2.13 | 1 | $2.13/1 = 2.13$ | $\frac{2.13}{1.055} \approx 2$ |
| Br | 85.11 | 80 | $85.11/80 = 1.063$ | $\frac{1.063}{1.055} = 1$ |

\therefore Empirical formula of the compound is CH_2Br

$$\text{Molecular formula} = (\text{Empirical formula}) \times n$$

$$\begin{aligned} n &= \frac{\text{M.W.}}{\text{Empirical formula Weight}} \\ &= \frac{2 \times \text{V.D}}{\text{Empirical formula weight}} \\ &= \frac{2 \times 94}{(12 + 2 + 80)} \\ &= \frac{2 \times 94}{94} = 2 \end{aligned}$$

$$\therefore \text{Molecular formula} = (\text{CH}_2\text{Br}) \times 2$$
$$= \text{C}_2\text{H}_4\text{Br}_2$$

(b) (i) 1 mole of sulphur = 6×10^{23} atoms

$$\therefore 10^{22} \text{ atoms} = \frac{32 \times 10^{22}}{6 \times 10^{23}} = \frac{32}{60} = 0.533 \text{ g}$$

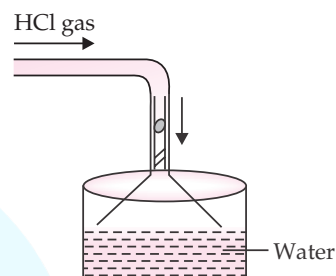
(ii) 1 mole of carbon dioxide (CO_2)

$$= 12 + (2 \times 16) = 44 \text{ g}$$

\therefore 0.1 mole of carbon dioxide

$$= 0.1 \times 44 = 4.4 \text{ g}$$

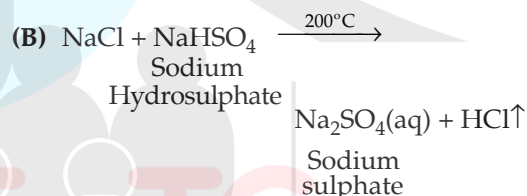
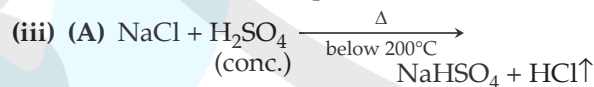
(c) (i)



Inverted funnel arrangement.

(ii) 1. The funnel arrangement provides a large surface area, which checks back suction.

2. To check its escape in the air.

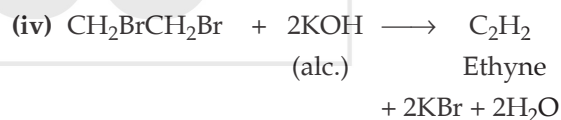


Answer 5.

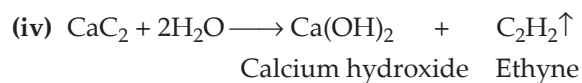
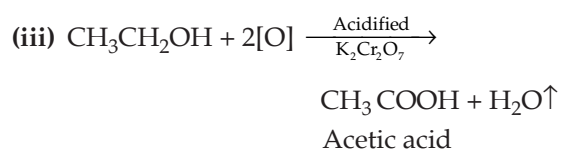
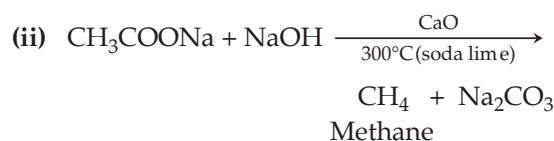
(a) (i) Nickel

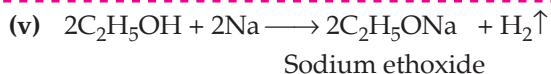
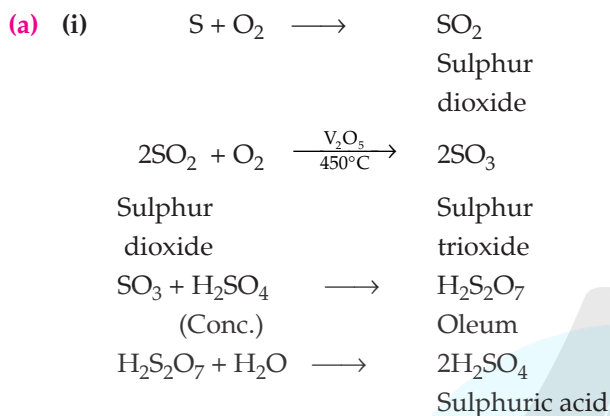
(ii) Acetic acid

(iii) Esterification



(v) Ethanol



**Answer 6.**

(ii) (A) Less volatile nature.

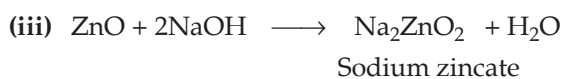
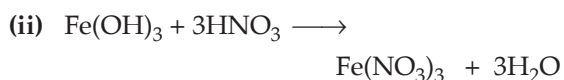
(B) Oxidising property.

(b) (i) It is an all glass retort. The apparatus is made of glass because vapours of nitric acid are corrosive.

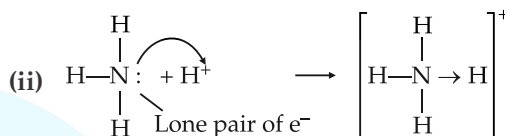
(ii) The temperature of the reaction mixture of nitric acid not be allowed to rise above $200^\circ C$ because above $200^\circ C$, nitric acid will decompose and glass apparatus may break.



Ammonium chloride

**Answer 7.**

(a) (i) Thirteenth group, third period.



(iii) When exposed to air, washing, soda crystals lose their water of crystallisation and become amorphous.

The phenomenon is called efflorescence.

(b) (i) (B) Neutralisation

(ii) (E) Direct synthesis

(iii) (D) Double decomposition

(iv) (A) Simple displacement

(v) (C) Decomposition by acid.

GURUKUL

QUESTIONS

(Two Hours)

Answer to this paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the Question paper. The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **all** questions from **Section I** and **any four** question from **Section II**.

The intended marks for questions or parts of questions are given in brackets [].

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Name the following : [5]
- The process of transformation of several glucose molecules into one molecule of starch.
 - The point of attachment of two chromatids.
 - The iron containing pigment in erythrocytes.
 - The duct which transports urine from the kidney to the urinary bladder.
 - The part of the brain which is concerned with memory.
- (b) Explain the following terms: [5]
- Allele
 - Diffusion
 - Photolysis
 - Phenotype
 - Population density
- (c) Given below are certain groups of terms. In each group the first pair indicates a relationship between the two terms. Rewrite and complete the second pair on a similar basis. [5]
- Example:** Cytoplasm: Cytokinesis :: Nucleus: Karyokinesis.
- Widening of hips: Oestrogen :: Deepening of voice in males: _____
 - Brain : Meninges :: Heart : _____
 - Insulin : Beta-cells :: Glucagon : _____
 - Kidney : Renal artery :: Liver : _____
 - Uterus : Implantation :: Fallopian tube : _____

- (d) Given below are sets of five terms each. Rewrite the terms in correct order in a logical sequence beginning with the first word that is underlined: [5]
- Stimulus, Response, Receptor, Effector, Spinal cord.
 - Root hair, Endodermis, Epidermis, Xylem, Cortex.
 - Conjunctiva, Yellow spot, Pupil, Vitreous Humour, Aqueous Humour.
 - Australopithecus, Cro-Magnon Man, Homo erectus, Neanderthal Man, Homo sapiens.
 - Artery, Capillaries, Venule, Vein, Arteriole.
- (e) Choose the correct answer from the four options given below : [5]
- The fusion of the sperm and ovum is termed as:
(A) Reproduction (B) Development
(C) Fertilization (D) Embryo
 - Agranulocytes are:
(A) Lymphocytes, Monocytes
(B) Lymphocytes, Basophils
(C) Eosinophils, Basophils
(D) Eosinophils, Monocytes
 - Which of the following is not a natural reflex action?
(A) Knee-jerk
(B) Blinking of eyes due to strong light
(C) Salivation at the sight of food
(D) Sneezing when any irritant enters the nose
 - The structural and functional units of excretion in the human kidney is the:
(A) Ureter (B) Bowman's capsule
(C) Renal pelvis (D) Nephron
 - In a human female, ovum consists of:
(A) 23 pair of autosomes
(B) 22 pairs of autosomes and 1 pair of sex chromosomes
(C) 22 autosomes and 1 Y-chromosome
(D) 22 autosomes and 1 X-chromosome
- (f) Identify the **ODD** term in each set and name the **CATEGORY** to which the remaining three belong: [5]
- Auxin, Ethylene, Adrenaline, Cytokinin
 - Tympanum, Ear ossicles, Auditory canal, Pinna
 - Syringes, Soiled dressings, Discarded needles, Household detergents

(iv) Exophthalmic Goitre, Simple Goitre, Cretinism, Myxoedema

(v) Adenine, Guanine, Creatinine, Cytosine

- (g) Match the items given in column A with the most appropriate ones in Column B and **Rewrite** the correct matching pairs: [5]

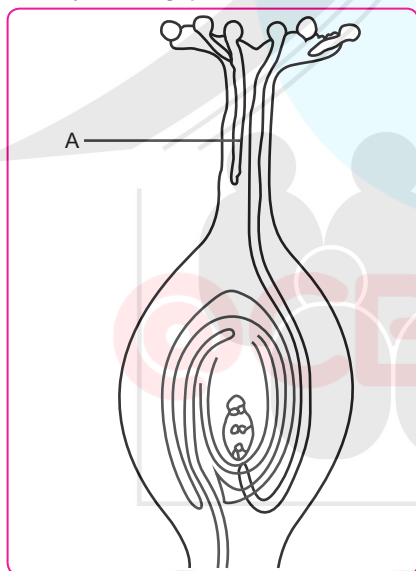
Column A

Column B

- | | | |
|-----------------------------|---|----------------------------|
| (i) <i>Biston betularia</i> | - | Calcium |
| (ii) Testes | - | balance of the body |
| (iii) Clotting of blood | - | Light independent reaction |
| (iv) Stroma | - | diffusion of gases |
| (v) Stomata | - | gonad |
| | - | Peppered moth |
| | - | Light dependent reaction |
| | - | Chlorophyll |

- (h) The diagram given below represents a plant movement. [5]

Answer the following questions.



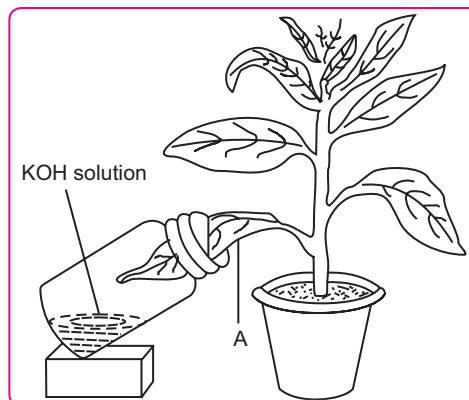
- Name the tropic movement shown in the diagram.
- Explain the tropic movement mentioned in (i).
- Label the part marked 'A'.
- What is part A attracted to?
- Give an example of a plant which shows Thigmotropism.

SECTION-II (40 Marks)

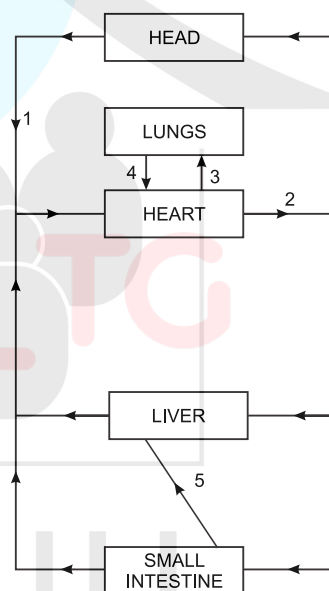
Attempt any **four** questions from this Section.

Question 2.

- (a) The diagram given below represents an experiment to prove the importance of a factor in photosynthesis. Answer the questions that follow: [5]



- Which factor is being studied here?
 - What is the purpose of keeping KOH in the flask?
 - Explain the term Photosynthesis.
 - What will you observe when the leaf A is tested for starch?
 - Write a well balanced chemical equation for the process of photosynthesis.
- (b) The diagram given below represents the simplified pathway of the circulation of blood. Answer the questions that follow: [5]

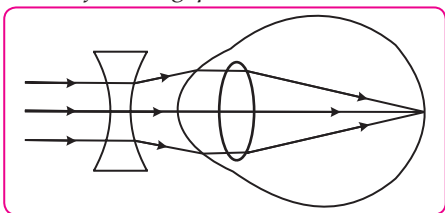


- Name the blood vessels labelled 1 to 4.
- Which blood vessel supplies oxygenated blood to the muscles of the heart?
- What is the importance of blood vessel labelled 5?
- What is the type of blood circulation that takes place between the heart and the lungs?
- Draw a diagram of the different blood cells as seen in a smear of human blood.

Question 3.

- (a) The diagram given below depicts a defect of the human eye which has been corrected by using a suitable lens. [5]

Answer the following questions:



(i) Name the defect that has been corrected.

Which type of lens has been used for the correction?

(ii) Mention one cause for the above defect.

(iii) Where would the image have formed if the above lens was not used for correction?

(iv) Name the three concentric layers of the eyeball.

(v) Draw a neat, labelled diagram of a neuron.

(b) Give the biological reasons for the following statements: [5]

(i) It is advisable to keep green plants in an aquarium.

(ii) Water pollution is a major cause of concern in our country.

(iii) We cannot distinguish colours in dim light.

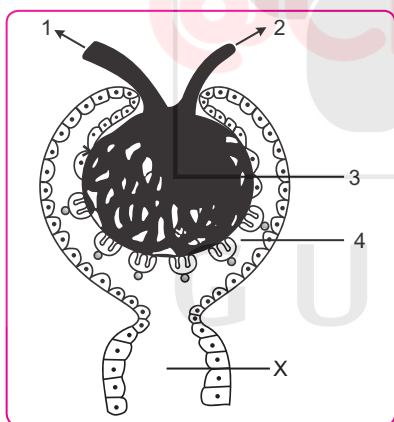
(iv) Medical discoveries such as antibiotics and vaccinations have indirectly contributed to the sharp rise in human population.

(v) Homo sapiens sapiens is the most highly evolved form of man.

Question 4.

(a) The figure given below shows a part of a nephron. [5]

Answer the questions that follow:



(i) In which region of the kidney is the above structure present?

(ii) Label the parts numbered 1 to 4.

(iii) What is the technical terms for the process that occurs in part 3?

(iv) Why is fluid X not called urine? Justify your answer.

(v) Draw a neat, labelled diagram of the urinary system of man.

(b) Differentiate between the following pairs on the basis of what is mentioned in the brackets: [5]

(i) Transpiration and Guttation (place of occurrence)

(ii) Biodegradable waste and Non-biodegradable waste (One example)

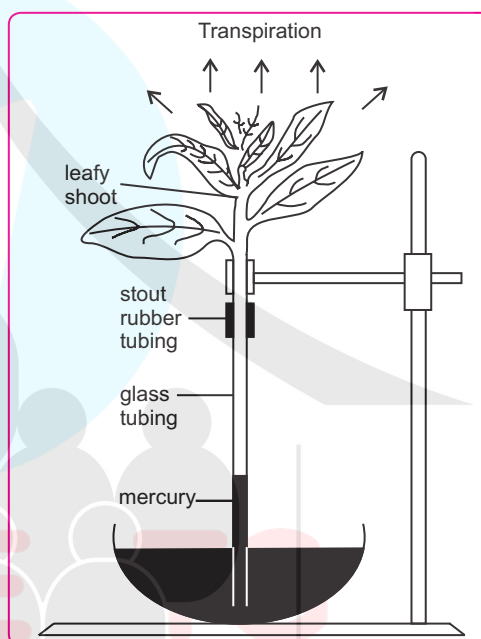
(iii) Population control and Swachh Bharat Abhiyan (One objective)

(iv) Osmosis and Active Transport (Substances undergoing movement)

(v) Metaphase and Anaphase (Position of chromosomes)

Question 5.

(a) The diagram below represents an experiment to demonstrate a certain phenomenon in a green plant: [5]



(i) Will the level of mercury in the glass tubing rise or fall?

Which conducting tissue of the plant does the glass-tubing represent?

(ii) Define Transpiration.

(iii) How will the rate of the above process differ if the environment of the plant has:

1. Less humidity

2. High temperature?

(iv) State any two advantages of transpiration to the plant.

(v) Draw a neat labelled diagram of a Plasmolysed cell.

(b) Give appropriate biological/technical terms for the following: [5]

(i) The sensory organ in Cochlea.

(ii) Number of live births per 1000 people per year.

(iii) The point of contact between two neurons.

(iv) The accessory gland in human males whose secretion neutralises the acid in the vagina.

- (v) Condition when blood sugar level is lowered in the blood.
 (vi) Structure which helps in the adjustment of the size of the pupil.
 (vii) A surgical method of fertility control in human males.
 (viii) Process by which leucocytes migrate through the walls of capillaries.
 (ix) A sudden inheritable change in one or more genes.
 (x) A non-dividing phase of the cell cycle where more DNA is synthesised.

Question 6.

- (a) State two functions of:

- (i) Ear (ii) Ethylene
 (iii) Tears (iv) Testis
 (v) Cerebellum

- (b) Complete the table:

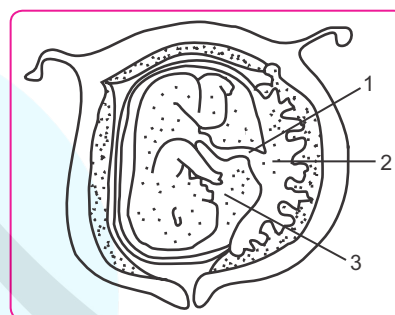
| Name of the Hormone | Endocrine Gland | Function |
|---------------------|-----------------|---|
| (i) | (ii) | Deposits extra glucose of blood as glycogen |
| Growth Hormone | (iii) | (iv) |
| (v) | Thyroid | (vi) |
| (vii) | (viii) | Prepare body for any emergency |
| Oxytocin | (ix) | (x) |

Question 7.

- (a) A homozygous dominant tall pea plant bearing red flowers (TTRR) is crossed with a homozygous recessive dwarf pea plant bearing white flowers (ttrr).

- (i) What is the phenotype and genotype of F_1 individuals?
 (ii) Write the possible combination of gametes that are obtained when two F_1 hybrid plants are crossed.
 (iii) Mention the phenotypic ratio of the F_2 generation.
 (iv) State Mendel's Law of Independent Assortment.
 (v) Name two X-linked disorders found in humans.
 (b) The diagram given below is that of a developing human foetus.

Answer the questions that follow:



- (i) Label the parts numbered 1 to 3 in the diagram.
 (ii) Mention any two functions of the part labelled 2 in the diagram.
 (iii) Explain the significance of the part numbered 3 in the diagram.
 (iv) Define the term 'Gestation'.
 What is the normal gestational period of the developing embryo?
 (v) Mention the sex chromosomes in a male and female embryo.

ANSWERS**SECTION-I****Answer 1.**

- (a) (i) Polymerisation
 (ii) Centromere
 (iii) Haemoglobin
 (iv) Ureter
 (v) Cerebrum
 (b) (i) Allele is the alternative forms of a gene occupying the same position on the homologous chromosomes, affecting the same characteristic but in different ways.
 (ii) Diffusion is the free movement of molecules of a substance from the region of their higher concentration to the region of their lower concentration when two are in direct contact.

- (iii) Photolysis is the process of splitting of water molecules into hydrogen ions and oxygen in presence of sunlight inside grana.
 (iv) Phenotype refers to the observable characteristics which are controlled genetically.
 (v) Population density is defined as the number of individuals per square kilometre at any given time.
 (c) (i) Testosterone
 (ii) Pericardium
 (iii) Alpha cells
 (iv) Hepatic artery
 (v) Fertilization
 (d) (i) Stimulus, receptor, spinal cord, effector, response
 (ii) Root hair, epidermis, cortex, endodermis, xylem

(iii) Conjunctiva, aqueous humour, pupil, vitreous humour, yellow spot

(iv) Australopithecus, *Homo erectus*, Neanderthal man, Cro-Magnon man, *Homo sapiens*

(v) Artery, arteriole, capillaries, venule, vein

(e) (i) C. Fertilization

(ii) A. Lymphocytes, Monocytes

(iii) C. Salivation at the sight of food

(iv) D. Nephron

(v) D. 22 autosomes and 1 X chromosome

(f) (i) Odd- Adrenaline;

Category- Plant hormones

(ii) Odd- Ear ossicles

Category- Parts of outer ear

(iii) Odd- Household detergents

Category- Biomedical wastes

(iv) Odd- Exophthalmic goitre

Category- Conditions due to Hypothyroidism

(v) Odd- Creatinine

Category- Nitrogenous bases

(g) Column A

Column B

(i) *Biston betularia* - Peppered moth

(ii) Testes - Gonad

(iii) Clotting of blood - Calcium

(iv) Stroma - Light independent reaction

(v) Stomata - diffusion of gases

(h) (i) Chemotropism

(ii) Chemotropism is the phenomenon of growth of plant organs in response to chemicals.

(iii) Pollen tube

(iv) Sugars and peptones

(v) Tendrils of *Cuscuta* that coils around other plants is an example of thigmotropism.

SECTION-II

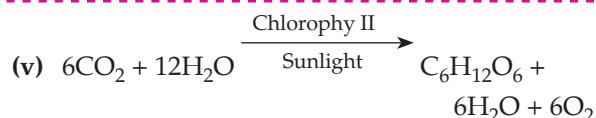
Answer 2.

(a) (i) Carbon dioxide is necessary for photosynthesis.

(ii) KOH absorbs carbon dioxide.

(iii) Photosynthesis is the process by which cells containing chlorophyll using carbon dioxide and water in presence of light energy produce glucose and release oxygen as by-product.

(iv) When leaf A is tested for starch for the portion inside the flask, it does not show blue-black colour indicating absence of starch whereas the portion that is outside will show blue-black colour.



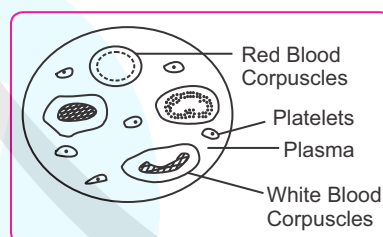
(b) (i) 1. Superior vena cava; 2. Aorta; 3. Pulmonary artery; 4. Pulmonary vein

(ii) Coronary artery

(iii) Hepatic portal vein carries the blood from stomach and intestine to liver where the excess sugar is stored as glycogen. If any toxins are present in blood, they are detoxified in liver. In this way, the quantity of nutrients flowing in the blood is regulated and circulation of toxic substances in the blood is prohibited.

(iv) Pulmonary circulation

(v)



Answer 3.

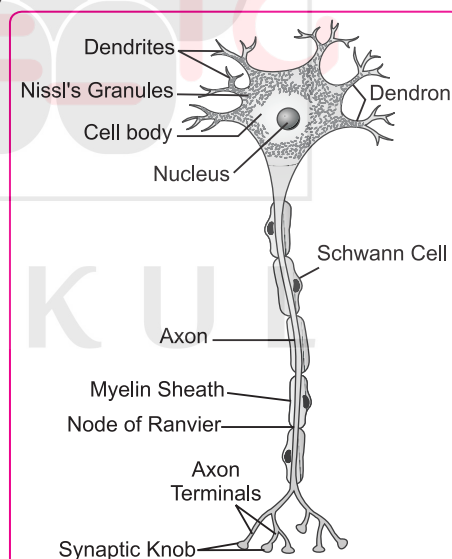
(a) (i) Myopia, Concave lens

(ii) The cause of myopia is lengthening of eyeball from front to back.

(iii) The image would have formed in front of the retina.

(iv) The three concentric layers of the eyeball are sclera, choroid and retina.

(v)



(b) (i) Green plants undergo photosynthesis by which oxygen gas is released which can be utilised by fishes for respiration. So, it is advisable to keep green plants in an aquarium.

(ii) Water pollution is the major cause of concern in our country because most of the wastes

from households, industries, power plants etc. are dumped into water bodies without prior treatment. Agricultural activities, oil spills, untreated sewage water also contribute to water pollution. This leads to degradation in water quality, making it unfit for human consumption and other uses and lead to several infectious diseases. Further, decrease in oxygen level in the polluted water harm the aquatic life, leading to loss of biodiversity. All the factors results in water scarcity and making it difficult to sustain the basic needs of the large population of the country.

(iii) In dim light, only rod cells of our eyes function, which do not respond to colour. So we cannot distinguish colours in dim light.

(iv) Due to medical discoveries of vaccine and antibiotics, many diseases have been controlled, increasing the lifespan of the individuals and decrease in the mortality rate. Thus, they have indirectly contributed to sharp rise in human population.

(v) *Homo sapiens sapiens* is the most highly evolved form of man because they developed a logical and syllabic speech in order to communicate, can cultivate plants and domesticated animals, prepared tools, ornaments, used advanced agricultural techniques. They developed cities; create new survival challenges for themselves as well as other species.

Answer 4.

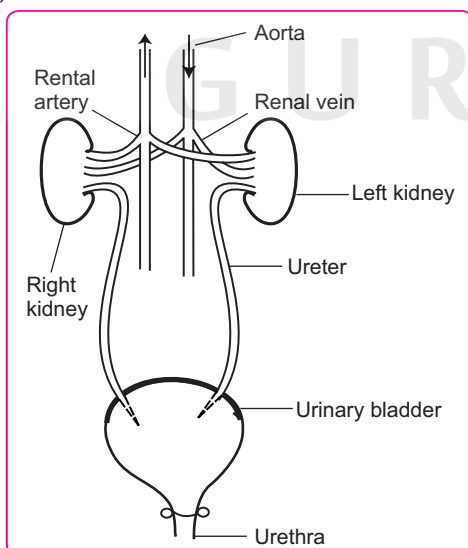
(a) (i) Cortex region of kidney.

(ii) 1. Afferent arteriole; 2. Efferent arteriole; 3. Glomerulus; 4. Bowman's capsule

(iii) Ultrafiltration

(iv) Fluid X is called glomerular filtrate but not urine because it is a very dilute solution that contains not only harmful wastes but also many useful substances like water, salts, glucose etc. which needs to be reabsorbed in the different parts of the nephron.

(v)



(b) (i) Transpiration occurs mainly through the stomata of the leaves.

Guttation occurs through hydathodes present along the margins of the leaves.

(ii) Example of biodegradable waste is kitchen left overs like peels of vegetables and fruits. Example of non-biodegradable waste is plastics.

(iii) One objective of population control is to make people aware of the advantages of having small family so that they can get proper food, clothing, education, medical facilities.

One objective of Swachh Bharat Abhiyan is to clean streets, roads, infrastructure of country's cities and towns.

(iv) Osmosis is the movement of water molecules. Active transport is the movement of salts or ions.

(v) In metaphase, chromosomes are lined up in one plane at equator of the cell.

In Anaphase, chromosomes move towards opposite poles of the cell.

Answer 5.

(a) (i) Mercury in the glass tube will rise.
Xylem

(ii) Transpiration is the loss of water in the form of water vapours from the leaves and other aerial parts of the plant.

(iii) 1. Less humidity increases the rate of transpiration.

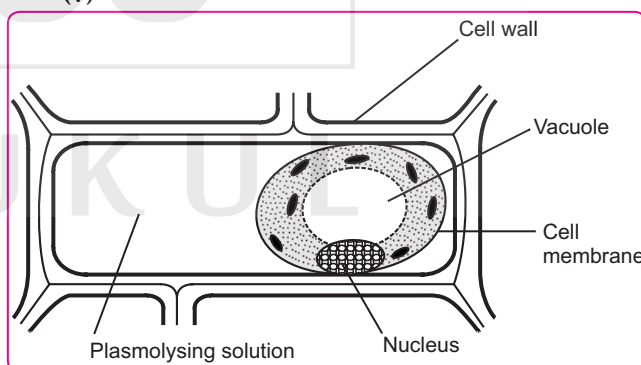
2. High temperature increases the rate of transpiration.

(iv) Two advantages of transpiration are:

1. It provides cooling effect to the plant.

2. It provides a suction force which helps in ascent of sap.

(v)



(b) (i) Organ of Corti

(ii) Natality

(iii) Synapse

(iv) Prostate gland

(v) Hypoglycemia

(vi) Iris

(vii) Vasectomy

(viii) Diapedesis

- (ix) Mutation
- (x) Synthesis phase of Interphase

Answer 6.

- (a) (i) Ear- 1. It acts as a hearing organ.
2. It helps in maintaining the dynamic as well as static balance the body.
- (ii) Ethylene- 1. It helps in ripening of fruits.
2. It accelerates senescence.
- (iii) Tears- 1. It serves as a lubricant for the surface of eye.
2. It contains an enzyme lysozyme which kills germs.
- (iv) Testis- 1. They produce sperms.
2. They produce male hormone testosterone.
- (v) Cerebellum- 1. It maintains balance of the body.
2. It coordinates muscular activity.
- (b) (i) Insulin
(ii) Pancreas
(iii) Anterior Pituitary gland
(iv) It promotes the normal growth of the whole body.
(v) Thyroxine
(vi) It regulates the basal metabolism of the body.
(vii) Adrenaline
(viii) Adrenal gland
(ix) Posterior Pituitary gland
(x) It stimulates contraction of uterus during child birth and stimulates milk ejection.

Answer 7.

- (a) (i) Phenotype is tall pea plants bearing red flowers.

Genotype is TtRr

- (ii) Possible combination of gametes is TR, tR, Tr, tr.

(iii) Phenotypic ratio is 9:3:3:1

(iv) Law of Independent Assortment states that the two pairs of factors in a dihybrid cross are segregated independently during gamete formation and are randomly combined in F_2 generation. Inheritance of factors controlling a particular trait in an organism is independent of the other.

(v) Colour blindness, Haemophilia

- (b) (i) 1. Umbilical cord; 2. Placenta; 3. Amniotic fluid

(ii) Two functions of placenta are:

1. It allows diffusion of substances like nutrients and oxygen from mother to foetus; and carbon dioxide and waste products from foetus to mother.

2. It acts as an endocrine gland and produces hormones like oestrogen and progesterone.

(iii) Amniotic fluid acts as a shock absorber, protecting the embryo from physical damage by jerks or mechanical shocks. It also prevents sticking of foetus to amnion.

(iv) Gestation is the full term of the development of the embryo in the uterus. In humans, the normal gestation period is about 280 days.

(v) In female embryo, XX sex chromosome is present whereas in male, XY is present.



GURUKUL

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Name the following : [5]
- The layer of eyeball that provides nourishment to the eye.
 - One gaseous compound which depletes the ozone layer.
 - The structure which connects the placenta and the foetus.
 - A pair of corresponding chromosomes of the same shape and size and derived one from each parent.
 - The compound formed when haemoglobin combines with carbon dioxide in blood.
- (b) Correct and rewrite the statement by changing the biological term that is underlined for each statement : [5]
- The theory of Inheritance of Acquired characters was proposed by Watson and Crick.
 - The protective sac which develops around the developing embryo is called the Pericardium.
 - Maintaining balance of the body and coordinating muscular activities is carried out by the cerebrum.
 - The kidney is composed of number of neurons.
 - The part of the eye which can be donated from a clinically dead person is the Retina.
- (c) Give suitable biological reasons for the following statements : [5]
- The birth rate in India is very high.
 - Carbon monoxide is dangerous when inhaled.
 - Root hairs become flaccid and droop when excess fertilizers are added to the moist soil around them.
 - Acid rain is harmful to the environment.
 - All life on Earth is supported by Photosynthesis.
- (d) Match the items given in Column A with the most appropriate ones in Column B and **REWRITE** the correct matching pairs : [5]

| Column A | Column B |
|---------------------|----------------|
| (i) Cranial nerves | Testosterone |
| (ii) Leydig cells | Natural reflex |
| (iii) Acetylcholine | 12 pairs |
| (iv) Spinal nerves | Prolactin |

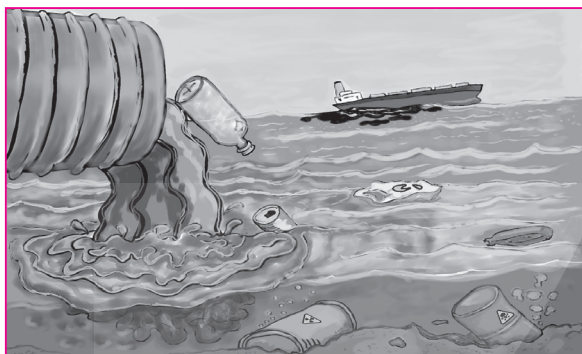
| | |
|--------------|--------------------|
| (v) Sneezing | Neurotransmitter |
| | 18 pairs |
| | 31 pairs |
| | Conditioned reflex |

- (e) Choose the correct answer from the four options given below : [5]
- While recording the pulse rate, where exactly does a doctor press on our wrist ?
(A) Nerve (B) Vein
(C) Artery (D) Capillary
 - In a human male, a sperm will contain :
(A) Both X and Y chromosomes
(B) Only Y chromosome
(C) Only X chromosome
(D) Either X or Y chromosome
 - A muscular wall is absent in :
(A) Capillary (B) Venule
(C) Arteriole (D) Vein
 - On which day of the menstrual cycle does ovulation take place ?
(A) 5th day (B) 28th day
(C) 14th day (D) 1st day
 - Which one of the following does not affect the rate of transpiration ?
(A) Light (B) Humidity
(C) Wind (D) Age of the plant
- (f) Identify the **ODD** term in each set and name the **CATEGORY** to which the remaining three belong : [5]
- Example : glucose, starch, cellulose, calcium
Odd term : calcium
Category : others are different types of carbohydrates.
- Addison's disease, Cushing's Syndrome, Acromegaly, Leukemia
 - Insulin, Adrenaline, Pepsin, Thyroxine.
 - Axon, Dendron, Photon, Cyton.
 - Chicken, Pox, Colour blindness, Haemophilia, Albinism.
 - Polythene bag, Crop residue, Animal waste, Decaying vegetable.

(g) Expand the following biological abbreviations. [5]

- (i) ABA (ii) IAA
(iii) ATP (iv) DNA
(v) TSH

(h) Study the picture given below and answer the following questions : [5]



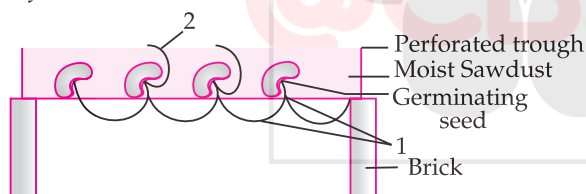
- (i) Identify the type of pollution.
(ii) Name one pollutant that causes the above pollution.
(iii) Mention the impact of this pollution on human health.
(iv) State one measure to control this pollution.
(v) What is a 'Pollutant' ? Explain the term.

SECTION-II (40 Marks)

Attempt any four questions from this Section.

Question 2.

(a) Given below is an experimental set up to demonstrate a particular tropic movement in germinating seeds. Study the diagram and answer the questions that follow : [5]



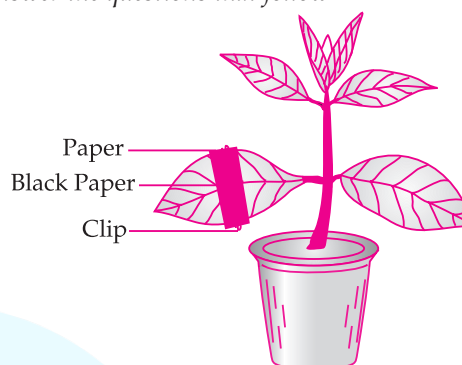
- (i) Label the parts 1 and 2.
(ii) Name the tropic movement shown by part 1.
(iii) Part 1 is affected by two stimuli. Name them.
Which one of the two is stronger ?
(iv) What is Thigmotropism ? Give one example.
(v) What is meant by 'Positive' and 'Negative' tropic movements in plants ?

(b) Mention the exact location of the following : [5]

- (i) Testis
(ii) Incus
(iii) Thylakoids
(iv) Amniotic fluid
(v) Corpus callosum

Question 3.

(a) The diagram given below represents an experiment to prove the importance of a factor in photosynthesis. Answer the questions that follow : [5]



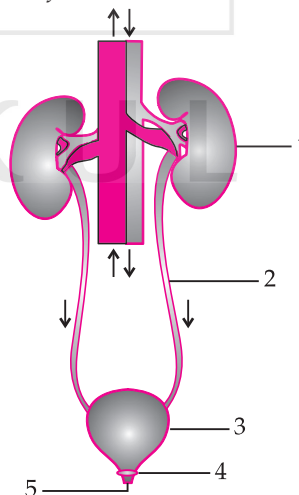
- (i) Name the factor studied in this experiment.
(ii) What will you observe in the experimental leaf after the starch test ?
(iii) Explain the process of Photosynthesis.
(iv) Give a balanced chemical equation to represent the process of photosynthesis.
(v) Draw a neat, labelled diagram of an experimental setup to show that oxygen is released during photosynthesis.

(b) State the main function of the following : [5]

- (i) Medulla Oblongata
(ii) Cytokinins
(iii) Tears
(iv) Coronary Artery
(v) Seminal Vesicles.

Question 4.

(a) The diagram given below represents an organ system in the human body. Study the same and answer the questions that follow : [5]



- (i) Identify the system.
(ii) Label the parts marked 2 and 4. Mention the function of part 5.

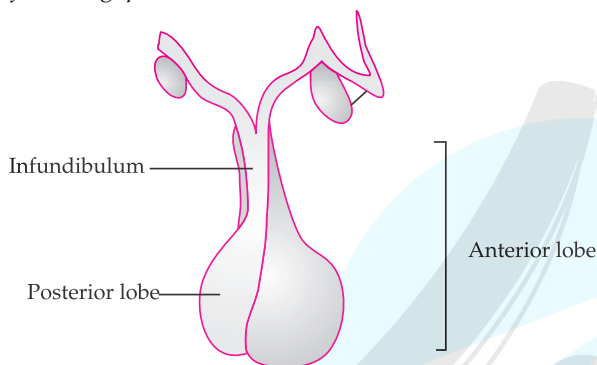
(iii) Name the structural and functional units of the part marked 1.

(iv) What is the fluid that accumulates in part 3 ?

Which is the main nitrogenous waste present in it ?

(v) Draw a neat, labelled diagram showing the longitudinal section of part 1.

- (b) The diagram given below represent an endocrine gland in the human body. Study the diagram and answer the following question : [5]



(i) Identify the endocrine gland. Where is it located ?

(ii) Why is the above gland referred to as the 'Master gland' ?

(iii) Name the hormone which in deficiency causes Diabetes Insipidus.

How does this disorder differ from Diabetes Mellitus ?

(iv) Explain the term 'Hormone'.

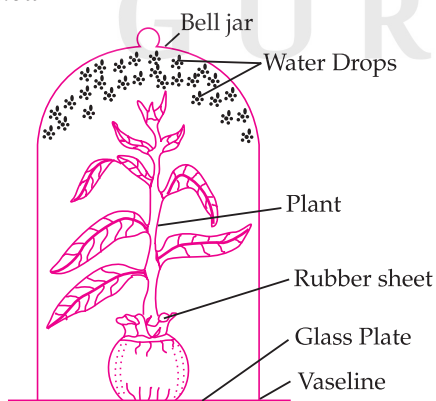
What is the role of Tropic hormones in the human body ?

(v) Which lobe of the above gland secretes :

1. Oxytocin
2. ACTH
3. Growth hormone

Question 5.

- (a) Given below is an apparatus which was setup to investigate a physiological process in plants. The setup was placed in bright sunlight. Answer the questions that follow : [5]



(i) Name the process being studied. Define the process.

(ii) Why was the pot enclosed in a rubber sheet ?

(iii) Mention two external factors which can accelerate the above process.

(iv) List two adaptations in plants to reduce the above process.

(v) Draw a neat, labelled diagram of a stomatal apparatus.

- (b) Given below are two stages in the evolution of man.

Study them and answer the questions that follow : [5]



(i) Identify Australopithecus and Neanderthal man from the above pictures.

(ii) Mention two characteristic features each for the two stages.

(iii) Who proposed the theory of 'Natural Selection'?

(iv) Name the organism used as an example to explain 'Industrial Melanism'.

(v) Give two examples of Vestigial organs in humans.

Question 6.

- (a) In Mendel's experiments, tall pea plants (T) are dominant over dwarf pea plants (t). [5]

(i) What is the phenotype and genotype of the F_1 generation if a homozygous tall plant is crossed with a homozygous dwarf plant ?

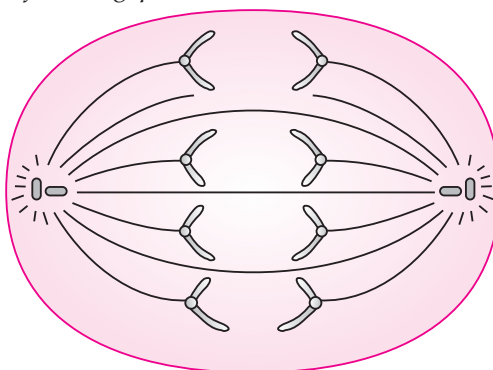
(ii) Draw a punnett square board to show the gametes and offspring when both the parents are heterozygous for tallness.

(iii) What is the phenotypic ratio and genotypic ratio of the above cross in (ii) ?

(iv) State Mendel's Law of Dominance.

(v) What is Dihybrid Cross ?

- (b) Given below is a diagram representing a stage during the mitotic cell division. Study the diagram and answer the following question : [5]



(i) Identify the stage by giving a suitable reason.

(ii) Is it a plant or an animal cell? Give a reason to support your answer.

(iii) Draw a neat, labelled diagram of the stage which follows the one shown in the diagram.

(iv) How many chromosomes will each daughter cell have after the completion of the above division?

(v) Name of the nitrogenous bases.

Question 7.

(a) Answer the following questions briefly : [5]

(i) How are the cytons and axons placed in the brain and the spinal cord?

(ii) Which part of the human ear gives 'Dynamic balance' and 'Static balance' to the body?

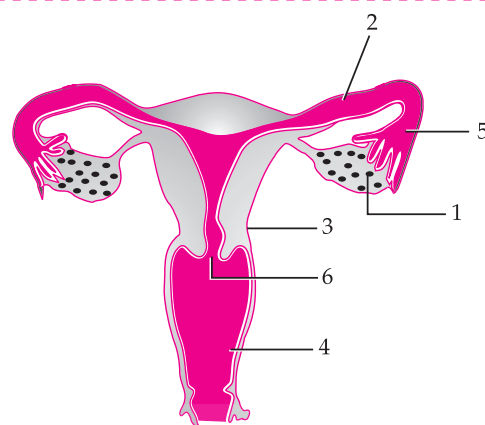
(iii) Explain how the human eye adapts itself to bright light and dim light.

(iv) What is Parthenocarpy? Give one example.

(v) Mention any two objectives of 'Swachh Bharat Abhiyan'.

(b) The diagram given below represent a system in the human body.

Study the diagram and answer the following questions : [5]



(i) Identify the system.

(ii) Label the parts marked 5 and 6.

(iii) Name the two hormones secreted by 1.

(iv) Mention the number and the name of the part involved in fertilization and implantation from the above diagram.

(v) Mention the surgical methods of contraception in :

1. Human males
2. Human females.

ANSWERS

SECTION-I

Answer 1.

(a) (i) Choroid layer

(ii) CFCs [Chlorofluorocarbons] or CCl_4

(iii) Umbilical cord

(iv) Homologous chromosomes

(v) Carbamino-haemoglobin/ HbCO_2

(b) (i) The theory of Inheritance of Acquired characters was proposed by **Lamarck**.

(ii) The protective sac which develops around the developing embryo is called the **Amnion**.

(iii) Maintaining balance of the body and coordinating muscular activities is carried out by the **Cerebellum**.

(iv) The kidney is composed of number of **Nephrons** Uriniferous tubules.

(v) The part of the eye which can be donated from a clinically dead person is the **Cornea**.

(c) (i) Most of the people who belong to rural area are illiterate, superstitious and ignorant. They don't know much about the function of reproductive system and use of contraceptives which is the major reason for population explosion in India. They consider children as the gift of god and a sign of prosperity. Desire for a male child is another important reason.

(ii) Haemoglobin has a very strong affinity for Carbon monoxide and a stable compound called

Carboxy-haemoglobin (HbCO) is formed when carbon monoxide is inhaled. It cuts down the capacity of blood to transport oxygen which may lead to death. Hence it is very dangerous to inhale carbon monoxide.

(iii) When excess fertilizers are added to moist soil, solute concentration increases, making the soil a hypertonic solution, in turn outward flow of water occurs from root hair cells causing plasmolysis of cell. Hence root hairs become flaccid and droop down.

(iv) Acid rain has oxides of nitrogen and sulphur dissolved in it which decreases its pH value thus making it acidic. This damages vegetation, corrodes monuments, statues, buildings etc., and also causes harm to human health, aquatic life and crops and pollutes soil.

(v) Our food chain starts with producers *i.e.* green plants as they are the only organisms which can prepare their own food by photosynthesis process. All other living organisms depend upon them directly or indirectly for food. Photosynthesis is thus the process by which oxygen is released to our atmosphere which is a life supporting gas. So we can say that directly or indirectly all life on Earth is supported by photosynthesis.

(d)

| Column A | Column B |
|--------------------|--------------|
| (i) Cranial nerves | 12 pairs |
| (ii) Leydig cells | Testosterone |

| | |
|---------------------|------------------|
| (iii) Acetylcholine | Neurotransmitter |
| (iv) Spinal nerves | 31 pairs |
| (v) Sneezing | Natural reflex |

- (e) (i) (C) Artery
(ii) (D) Either X or Y chromosome
(iii) (A) Capillary
(iv) (C) 14th day
(v) (D) Age of the plant
- (f) (i) **Odd- Leukemia**
Category- The rest are Hormonal disorders.
(ii) **Odd- Pepsin**
Category- Others are Hormones while pepsin is an enzyme.
(iii) **Odd- Photon**
Category- The rest are parts of a neuron.
(iv) **Odd- Chicken pox**
Category- Others are genetic disorders.
(v) **Odd- Polythene bag**
Category- Others are Biodegradable pollutants.
- (g) (i) Abscissic Acid
(ii) Indole 3-Acetic Acid
(iii) Adenosine Triphosphate
(iv) Deoxyribonucleic Acid
(v) Thyroid Stimulating Hormone
- (h) (i) Water Pollution
(ii) Detergents, Sewage, Domestic waste causes water pollution.
(iii) Water pollution can cause various health hazards in human beings like jaundice, typhoid, cholera and diarrhoea.
(iv) Industrial effluents should be treated before disposing them into water bodies. Sewage treatment plants should be set up to treat sewage as well recycling plastic, metal.
(v) Pollutant is any constituent which when added to water or soil or air brings about undesirable effect on environment affecting the life of living organisms. In other words, any element or constituent that pollutes either soil, water or air is called pollutant.

SECTION-II

Answer 2.

- (a) (i) 1. Radicle; 2. Plumule
(ii) Hydrotropism
(iii) The two stimuli are water/moisture and gravity of earth.
Water is a stronger stimulus as compared to earth's gravity.

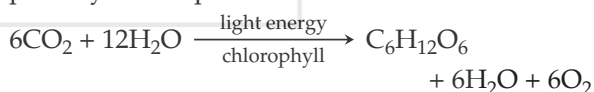
(iv) Thigmotropism is the growth movement of plants in response to touch stimulus. Example- The tendrils of *Cuscuta* coil around a support in response to touch.

(v) If the growth movement of plant parts is towards the stimuli then the plant shows positive tropic movement but if the growth movement of plant parts is away from the stimuli then it shows negative tropic movement.

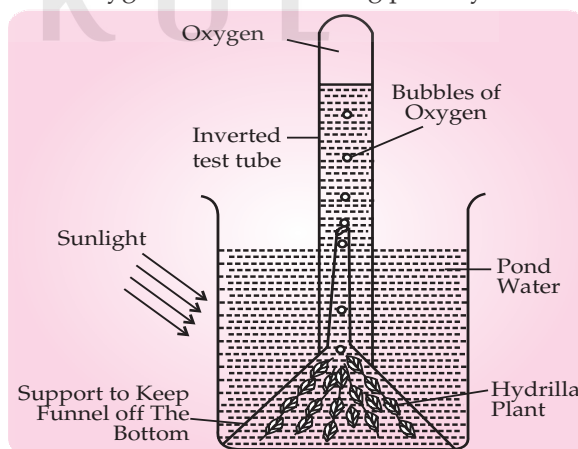
- (b) (i) Testes are located in thin walled sac like structure called Scrotal Sac.
(ii) Incus is the middle of the three bones of ear ossicles which is connected to Malleus on one end and Stapes on other end and is present in the middle ear of human beings.
(iii) Thylakoids are closely packed flattened sacs found in the stroma of chloroplast.
(iv) Amniotic fluid is found in the amnion. It fills the space between amnion and foetus.
(v) Corpus callosum is a bridge of nerve fibres which connects the two cerebral hemispheres.

Answer 3.

- (a) (i) Sunlight
(ii) After the starch test, we observe that the parts of leaf which remains uncovered will turn to blue-black colour indicating the presence of starch, but the covered portion of the leaf will turn brown in colour which indicates the absence of starch.
(iii) Photosynthesis is the process by which chlorophyll containing cells in the presence of suitable factors like water, carbon dioxide, sunlight prepare glucose and release oxygen gas into the atmosphere as a by-product.
(iv) The balanced chemical equation representing photosynthesis process is as follows-



- (v) Oxygen is released during photosynthesis.



(b) (i) Medulla oblongata controls the activity of internal organs and other involuntary functions like beating of heart, peristaltic movement, breathing movement etc.

(ii) Cytokinins stimulate plant growth by cell division and cell enlargement. They inhibit apical dominance, prevents ageing, breaks seed dormancy, delays senescence.

(iii) Tears clean the front surface of our eye by removing dust particles and the enzyme lysozyme present in tears, kills the germs.

(iv) Coronary artery supplies oxygenated blood to heart muscles.

(v) The secretion from seminal vesicles activates the sperms and provides a medium for their transportation.

Answer 4.

(a) (i) Excretory system

(ii) 2. Ureter; 4. Sphincter Muscle,

The structure labelled as 5 is urethra.

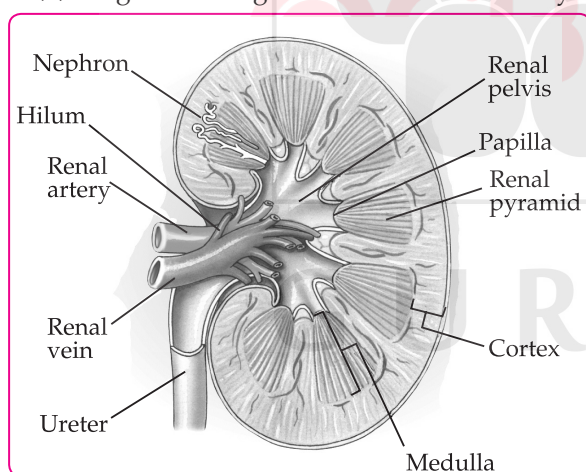
Urethra empties the urinary bladder at regular intervals *i.e.*, carries the urine from the bladder to outside of the body.

(iii) The structure labelled as 1 is Kidney.

The structural and functional unit of kidney is a nephron.

(iv) Urine gets accumulated in Urinary bladder [part 3]. Urea is the main nitrogenous waste present in urine.

(v) Diagram of longitudinal Section of kidney.



(b) (i) It is pituitary gland. It is located in the brain between hypothalamus and pineal gland.

(ii) Pituitary gland is called the Master gland as it controls the functions of other endocrine glands and also the main body functions such as growth.

(iii) Hormone is ADH/Vasopressin.

In Diabetes insipidus there is no sugar in urine but it is pale, in Diabetes mellitus sugar is present in urine.

(iv) Hormones are chemical secretions from specific glands which are poured directly into blood stream and produce effect in one or more target organs only.

Tropic hormones stimulate other glands for the production of some other hormones. For example- TSH [Thyroid stimulating hormone] stimulates thyroid gland to secrete thyroxine.

(v) 1. Posterior lobe or neurohypophysis

2. Anterior lobe or adenohypophysis

3. Anterior lobe or adenohypophysis

Answer 5.

(a) (i) Transpiration is the process being studied. It is the process by which water is lost in form of water vapour from leaves and other aerial part of the plant.

(ii) The pot was enclosed in a rubber sheet to prevent the escape of water in form of vapour from the pot.

(iii) Temperature and velocity of wind. If both temperature and wind velocity are high then process of transpiration increases.

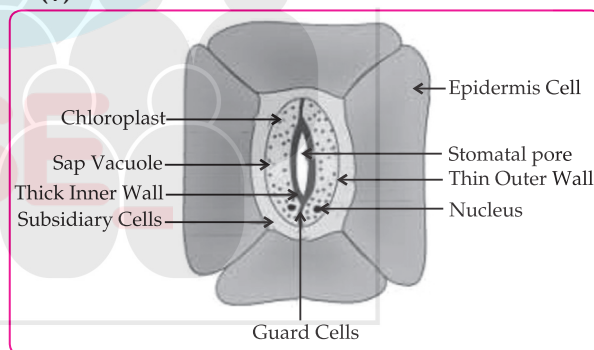
(iv) Adaptations in plants to reduce transpiration:

1. The stomata may be sunken or covered by hairs or their number may be reduced.

2. The leaves may become narrower.

3. The leaves may be covered with thick cuticle.

(v)



Stomatal Apparatus

(b) (i) A- Neanderthal man, B- Australopithecus

(ii) Characteristics features of Neanderthal man (A)—

1. Less hair on body, Large head.

2. Large cranial capacity 1500 cm^3 .

Characteristics features of Australopithecus (B)—

1. Chin absent, prominent eye brows ridges..

2. Cranial capacity of $450-600 \text{ cm}^3$.

(iii) Charles Darwin.

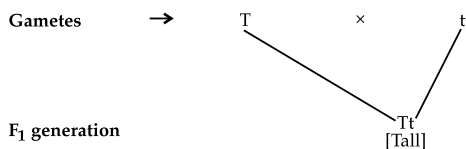
(iv) Peppered moth- *Biston betularia*

(v) Wisdom teeth, Vermiform appendix.

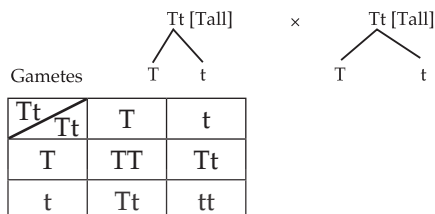
Answer 6.

(a) (i) In F₁ generation, phenotype of the plants will be Tall and genotype is Tt. (heterozygous dominant)

Parental Generation → Pure Tall Pea Plant TT × Pure Dwarf Pea Plant tt



(ii)



(ii) Phenotypic ratio is 3 : 1

Genotypic ratio is 1 : 2 : 1

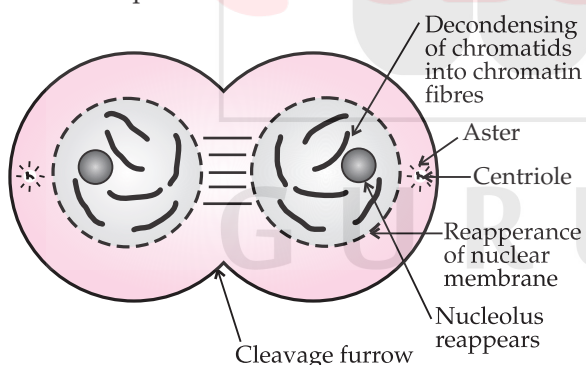
(iv) **Law of Dominance** : It states that in a cross between pure breeding lines out of the pair of contrasting characters, the one that is expressed in first generation is dominant and the one that is not expressed is recessive. Only dominant trait is expressed in first generation.

(v) Dihybrid cross is a cross between two pure breeding different varieties of organisms considering alternative traits of two different characters.

(b) (i) It is anaphase stage of mitosis as the two sister chromatids are separated from each other and moving towards opposite poles by contraction of spindle fibres.

(ii) It is an animal cell as there is presence of centrioles and formation of aster, cell wall absent.

(iii) Telophase



(iv) Each daughter cell shall have 4 chromosomes as in mitosis process, the number of chromosome remains constant.

(v) Adenine, Guanine, Cytosine, Thymine.

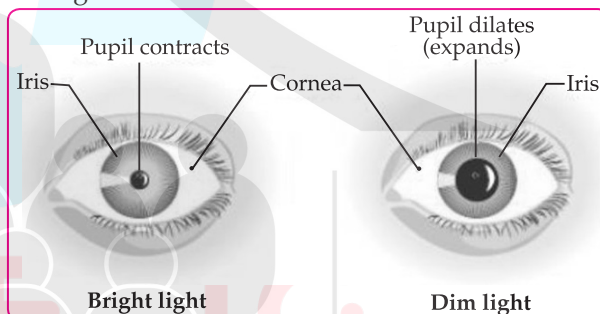
Answer 7.

(a) (i) Axons are placed in inner portion whereas cytons are placed in outer portion of brain but in spinal cord, axons are placed in outer side and cell bodies/cytons are placed in the inner portions.

(ii) Sensory cells in semi-circular canals are concerned with dynamic balance of the body. Sensory patches in Utriculus and Sacculus are concerned with static balance of the body.

(iii) When we move from a brightly lighted area to a dark room *i.e.*, in dim light, we experience difficulty in seeing objects for some time. Slowly, our vision is improved. This is called dark adaptation. The pupil dilates to allow more light to enter the eyes and rhodopsin/visual purple is generated.

When we enter a brightly lighted area after being in a dimly lit area for a period of time, we experience a dazzling light for short period after which our vision improves. This is called the light adaptation. Pupil constricts to allow less light to enter our eyes and rhodopsin pigment is degenerate.



(iv) Development of fruits without fertilization is called Parthenocarpy. Example- Banana, Apple.

(v) Two objectives of Swachh Bharat Abhiyan are-
1. To eliminate open defecation by building individual and public toilets even in the remotest areas.

2. To make our villages, cities and towns clean by removing wastes from streets, roads, parks, gardens, houses etc.

(b) (i) Female reproductive system

(ii) 5. Oviducal funnel; 6. Cervix

(iii) Ovary secretes Oestrogen and Progesterone.

(iv) Oviduct [part 2] is the site of fertilization and uterus [part 3] is site of implantation.

(v) 1. Vasectomy in males

2. Tubectomy in females.

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Name the following : [5]
- The organisation which procures and supplies blood during an emergency.**
 - The blood vessel which supplies blood to the liver.
 - The number of chromosomes present in a nerve cell of a human being.
 - The layer of the eyeball that forms the transparent Cornea.
 - The wax-like layer on the epidermis of leaves which reduces transpiration.
- (b) Choose the correct answer from each of the four options given below : [5]
- The number of Spinal nerves in a human being are :
 (A) 31 pairs (B) 10 pairs
 (C) 21 pairs (D) 30 pairs
 - Which one of the following is non-biodegradable ?
 (A) DDT (B) Vegetable peel
 (C) Cardboard (D) Bark of trees
 - Aqueous humour is present between the :
 (A) Lens and Retina
 (B) Iris and Lens
 (C) Cornea and Iris
 (D) Cornea and Lens
 - A strong chemical substance which is used on objects and surfaces in our surroundings to kill germs : **
 (A) Cresol
 (B) Carboic acid
 (C) Iodine
 (D) Mercurochrome
 - Which one of the following is a Greenhouse gas ?
 (A) Oxygen (B) Methane
 (C) Sulphur dioxide (D) Nitrogen

- (c) Complete the following paragraph by filling in the blanks (i) to (v) with appropriate words : [5]

To test a leaf for starch, the leaf is boiled in water to (i) _____. It is then boiled in Methylated spirit to (ii) _____. The leaf is dipped in warm water to soften it. It is placed in a petri dish, and (iii) _____ solution is added. The region of the leaf which contains starch, turns (iv) _____ and the region which does not contain starch, turns (v) _____.

- (d) Match the items given in **Column A** with the most appropriate ones in **Column B** and rewrite the correct matching pairs. [5]

| Column A | Column B |
|---------------------------|--------------------------------------|
| (i) Cretinism | (a) Hypersecretion of adrenal cortex |
| (ii) Diabetes insipidus | (b) Hyposecretion of Thyroxine |
| (iii) Exophthalmic Goitre | (c) Hyposecretion of growth hormone |
| (iv) Adrenal virilism | (d) Hyposecretion of Vasopressin |
| (v) Dwarfism | (e) Hyposecretion of adrenal cortex |
| | (f) Hypersecretion of Growth hormone |
| | (g) Hypersecretion of Thyroxine |

- (e) Correct the following statements by changing the underlined words : [5]

- Normal pale yellow colour of the urine is due to the presence of the pigment Melanin.
- The outermost layer of Meninges is Pia mater.
- The cell sap of root hair is Hypotonic.
- Xylem transports starch from the leaves to all parts of the plant body.
- Nitrogen bonds are present between the complementary nitrogenous bases of DNA.

- (f) Choose between the two options to answer the question specified in the brackets for the following : [5]

An example is illustrated below.

Example : Corolla or Calyx (Which is the outer whorl ?)

** Answer is not given due to change in the present syllabus.

Answer : Calyx

(i) Blood in the renal artery or renal vein (Which one has more urea ?)

(ii) Perilymph or endolymph (Which one surrounds the organ of Corti ?)

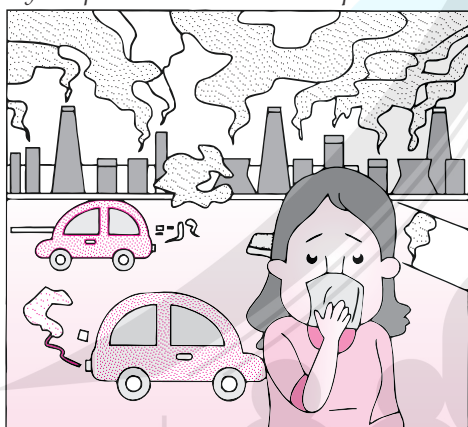
(iii) Lenticels or stomata (Which one remains open always ?)

(iv) Sclerotic layer or choroid layer (Which one forms the Iris ?)

(v) Blood in the pulmonary artery or pulmonary vein (Which one contains less oxyhaemoglobin ?)

(g) Given below is a representation of a type of pollution. [5]

Study the picture and answer the questions :



(i) Name the type of pollution shown in the picture.

(ii) Name one source of this pollution.

(iii) How does this pollution affect human health ?

(iv) Write one measure to reduce this pollution.

(v) State one gaseous compound that leads to the depletion of the ozone layer and creates 'Ozone holes'.

(h) Choose the **ODD** one out from the following terms given and name the **CATEGORY** to which the others belong : [5]

Example : Nose, Tongue, Arm, Eye.

Answer : Odd Term – Arm, Category – Sense organs

(i) Detergents, X-rays, sewage, oil spills.

(ii) Lumen, muscular tissue, connective tissue, pericardium.

(iii) Dendrites, Medullary Sheath, Axon, Spinal cord.

(iv) Centrosome, Cell wall, Cell membrane, Large vacuoles.

(v) Prostate gland, Cowper's gland, seminal vesicle, seminiferous tubules.

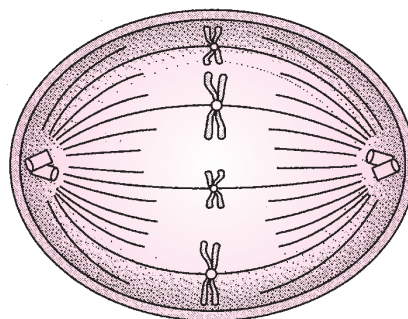
SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

(a) The diagram given below represents a stage during cell division. [5]

Study the same and answer the questions that follow :



(i) Identify whether it is a plant cell or an animal cell. Give a reason in support of your answer.

(ii) Name the stage depicted in the diagram.

What is the unique feature observed in this stage ?

(iii) Name the type of cell division that occurs during :

1. Replacement of old leaves by new ones.

2. Formation of gametes.

(iv) What is the stage that comes before the stage shown in the diagram ?

(v) Draw a neat, labelled diagram of the stage mentioned in (iv) above keeping the chromosome number constant.

(b) Mention the exact location of the following : [5]

(i) Epididymis

(ii) Lacrimal gland

(iii) Malleus

(iv) Hydathodes

(v) Pulmonary semilunar valve

Question 3.

(a) Given below are diagrams showing the different stages in the process of fertilisation of an egg in the human female reproductive tract. [5]

Study the diagrams and answer the questions :



(i) Arrange the letters given below each diagram in a logical sequence to show the correct order in the process of fertilisation.

(ii) Where does fertilisation normally take place ?

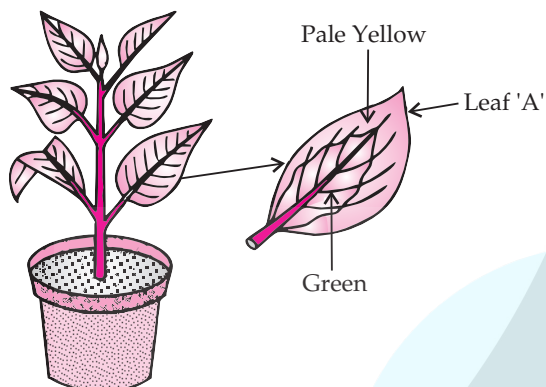
What is 'Implantation' that follows fertilisation ?

(iii) Mention the chromosome number of the egg and zygote in humans.

(iv) Explain the term 'Gestation'. How long does Gestation last in humans ?

(v) Draw a neat, labelled diagram of a mature human sperm.

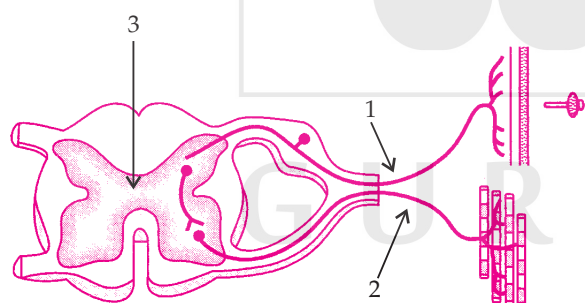
- (b) A potted plant with variegated leaves was taken in order to prove a factor necessary for photosynthesis. The potted plant was kept in the dark for 24 hours and then placed in bright sunlight for a few hours. Observe the diagrams and answer the questions. [5]



- What aspect of photosynthesis is being tested in the above diagram?
- Represent the process of photosynthesis in the form of a balanced equation.
- Why was the plant kept in the dark before beginning the experiment?
- What will be the result of the starch test performed on leaf 'A' shown in the diagram? Give an example of a plant with variegated leaves.
- Draw a neat labelled diagram of a chloroplast.

Question 4.

- (a) The diagram given below shows the internal structure of a spinal cord depicting a phenomenon. Study the diagram and answer the questions: [5]



- Name the phenomenon that is depicted in the diagram. Define the phenomenon.
- Give the technical term for the point of contact between the two nerve cells.
- Name the parts numbered 1, 2 and 3.
- How does the arrangement of neurons in the spinal cord differ from that of the brain?
- Mention two ways by which the spinal cord is protected in our body.

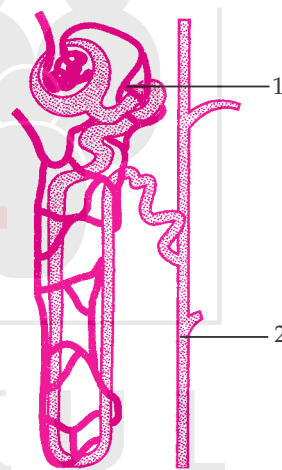
- (b) Give appropriate biological or technical terms for the following: [5]

- Process of maintaining water and salt balance in the blood.
- Hormones which regulate the secretion of other endocrine glands.
- Movement of molecules of a substance from their higher concentration to lower concentration when they are in direct contact.
- The condition in which a pair of chromosomes carry similar alleles of a particular character.
- The complex consisting of a DNA strand and a core of histones.
- The onset of menstruation in a young girl.
- Squeezing out of white blood cells from the capillaries into the surrounding tissues.
- The fluid which surrounds the foetus.
- The relaxation phase of the heart.
- The difference between the birth rate and the death rate.

Question 5.

- (a) The diagram given below is that of a structure present in a human kidney. [5]

Study the same and answer the questions that follow:



- Name the structure represented in the diagram.
- What is the liquid entering part '1' called? Name two substances present in this liquid that are reabsorbed in the tubule.
- What is the fluid that comes to part '2' called? Name the main nitrogenous waste in it.
- Mention the three main steps involved in the formation of the fluid mentioned in (iii) above.
- Name the substance which may be present in the fluid in part '2' if a person suffers from Diabetes mellitus.

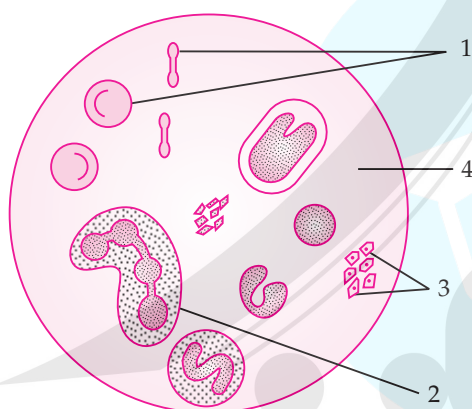
- (b) Differentiate between the following pairs on the basis of what is indicated in the brackets : [5]

- (i) Leaf and Liver [form in which glucose is stored]
- (ii) ATP and AIDS [expand the abbreviations]
- (iii) Testosterone and Oestrogen [organ which secretes]
- (iv) Ureter and Urethra [function]
- (v) Hypotonic solution and Hypertonic solution [condition of a plant cell when placed in them]

Question 6.

- (a) Given below is a diagram of a human blood smear. [5]

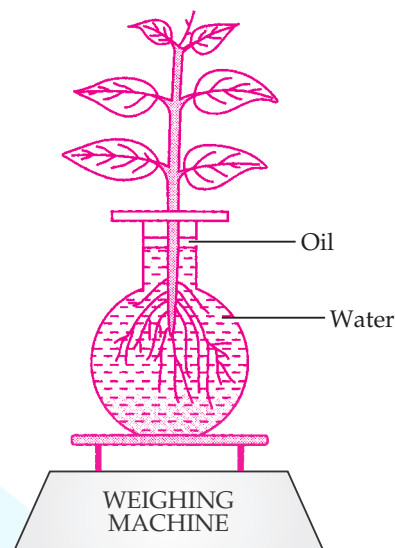
Study the diagram and answer the questions that follow :



- (i) Name the components numbered '1' to '4'.
 - (ii) Mention two structural differences between the parts '1' and '2'.
 - (iii) Name the soluble protein found in part '4' which forms insoluble threads during clotting of blood.
 - (iv) What is the average lifespan of the component numbered '1' ?
 - (v) Component numbered '1' do not have certain organelles but are very efficient in their function. Explain.
- (b) Give biological explanations for the following : [5]
- (i) Education is very important for population control.
 - (ii) The placenta is an important structure for the development of a foetus.
 - (iii) All the food chains begin with green plants.
 - (iv) Plants growing in fertilized soil are often found to wilt if the soil is not adequately watered.
 - (v) We should not put sharp objects into our ears.

Question 7.

- (a) The diagram below represents a process in plants. [5]
The setup was placed in bright sunlight. Answer the following questions :



- (i) Name the physiological process depicted in the diagram.

Why was oil added to the water ?

- (ii) When placed in bright sunlight for four hours, what do you observe with regard to the initial and final weight of the plant ?

Give a suitable reason for your answer.

- (iii) What happens to the level of water when this setup is placed in :

- 1. Humid conditions ?
- 2. Windy conditions ?

- (iv) Mention any three adaptations found in plants to overcome the process mentioned in (i).

- (v) Explain the term 'Guttation'.

- (b) A pea plant which is homozygous for Green pods which are inflated [GGII] is crossed with a homozygous plant for yellow pods which are constricted [ggii]. Answer the following questions : [5]

- (i) Give the phenotype and genotype of the F_1 generation.

Which type of pollination has occurred to produce F_1 generation ?

- (ii) Write the phenotypic ratio of the F_2 generation.

- (iii) Write the possible combinations of the gametes that can be obtained if two F_1 hybrid plants are crossed.

- (iv) State Mendel's law of 'Segregation of Gametes'.

- (v) What is the scientific name of the plant which Mendel used for his experiments on inheritance ?

ANSWERS

SECTION-I

Answer 1.

- (a) (ii) Hepatic artery (iii) 46
(iv) Sclera/sclerotic layer (v) Cuticle
- (b) (i) (A) 31 pairs (ii) (A) DDT
(iii) (D) Cornea and lens (v) (B) Methane
- (c) (i) Kill the cells
(ii) Remove chlorophyll (iii) Iodine
(iv) Blue-black (v) Yellowish Brown

(d)

| Column A | Column B |
|---------------------------|--------------------------------------|
| (i) Cretinism | (b) Hyposecretion of Thyroxine |
| (ii) Diabetes insipidus | (d) Hyposecretion of Vasopressin |
| (iii) Exophthalmic Goitre | (g) Hypersecretion of Thyroxine |
| (iv) Adrenal virilism | (a) Hypersecretion of adrenal cortex |
| (v) Dwarfism | (c) Hyposecretion of growth hormone |

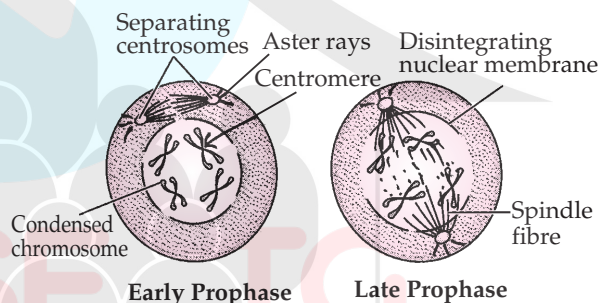
- (e) (i) Normal pale yellow colour of the urine is due to the presence of the pigment **Urochrome**.
(ii) The outermost layer of Meninges is **Dura mater**.
(iii) The cell sap of root hair is **Hypertonic**.
(iv) **Phloem** transports starch from the leaves to all parts of the plant body.
(v) **Hydrogen** bonds are present between the complementary nitrogenous bases of DNA.
- (f) (i) Blood in renal artery
(ii) Endolymph
(iii) Lenticels
(iv) Choroid layer
(v) Blood in the pulmonary artery
- (g) (i) Air pollution
(ii) Gases emitted from factories, industries and automobile exhausts.
(iii) Air pollution causes respiratory problems and lung disorders like bronchitis. It also leads to poor visibility and asthma.
(iv) Installation of tall chimneys in factories and chimneys should be fitted with filters and electrostatic precipitators. Also, use of efficient engines, unleaded petrol and CNG in automobiles help to reduce air pollution.
(v) CFCs (chlorofluorocarbons)
- (h) (i) **Odd one** : X-rays
Category : Water pollutants.

- (ii) **Odd one** : Lumen
Category : Type of tissues
- (iii) **Odd one** : Spinal cord
Category : Parts of neuron.
- (iv) **Odd one** : Centrosome
Category : Parts of a plant cell.
- (v) **Odd one** : Seminiferous tubules
Category : Accessory glands of human male reproductive system.

SECTION-II

Answer 2.

- (a) (i) It is an animal cell as centrioles are present.
(ii) Metaphase of mitosis
All the duplicated chromosomes are aligned on the equatorial plane and the chromosomes are attached to the spindle fibres through centromere.
(iii) 1. Mitosis 2. Meiosis
(iv) Prophase
(v)

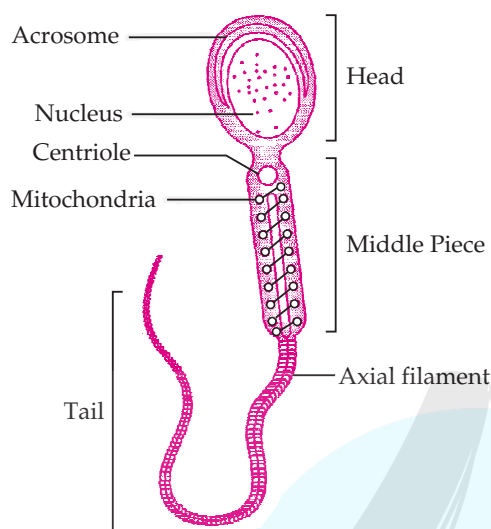


- (b) (i) **Epididymis** : Inside the scrotum and on upper pole of testis.
(ii) **Lacrimal glands** : At the upper sideward portion of the orbit of eyes.
(iii) **Malleus** : In the middle ear between the tympanic membrane and the incus.
(iv) **Hydathodes** : On the edges and tips of leaves.
(v) **Pulmonary semilunar valves** : At the opening of right ventricle into the pulmonary artery.

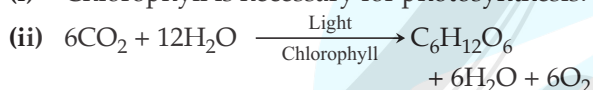
Answer 3.

- (a) (i) $D \rightarrow C \rightarrow B \rightarrow A$.
(ii) Fertilisation normally takes place in oviduct (fallopian tube). Implantation is the process of fixing of blastocyst to the wall of uterus.
(iii) Chromosome number of egg – 23
Chromosome number of zygote – 46
(iv) The full term of development of an embryo in the uterus is called gestation. It is about 280 days in the humans.

(v)



(b) (i) Chlorophyll is necessary for photosynthesis.

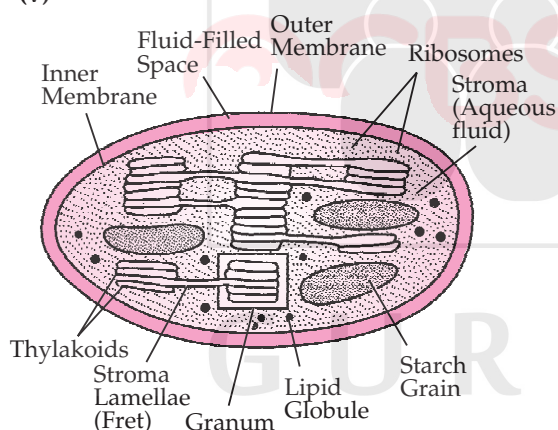


(iii) Plant was kept in dark to destarch the leaves so that the starch already present in the plant does not interfere with the results of the experiment.

(iv) The green portion of the leaf will turn blue-black, indicating the presence of starch and the pale yellow portion of the leaf will turn brown, indicating the absence of starch.

Example of plant with variegated leaves : Croton.

(v)

**Answer 4.**

(a) (i) Reflex action. It is an automatic, quick and involuntary action in the body brought about by a stimulus.

(ii) Synapse

(iii) 1. Sensory neuron, 2. Motor neuron, 3. Gray matter.

(iv) In spinal cord, the gray matter containing the cell bodies of neurons lies on inner side and white matter containing myelinated axons on outer side, whereas, in the brain, gray matter is outside and white matter lies on inner side.

(v) 1. Spinal cord is covered by three membranous layer of meninges which protects it and also its central canal is filled with cerebrospinal fluid which absorbs shocks.

2. It is also protected by the vertebrae of backbone.

- (b) (i) Osmoregulation (ii) Tropic hormones
 (iii) Diffusion (iv) Homozygous
 (v) Nucleosome (vi) Menarche
 (vii) Diapedesis (viii) Amniotic fluid
 (ix) Diastole (x) Growth rate of population

Answer 5.

(a) (i) Nephron/uriniferous tubule/renal tubule.

(ii) Glomerular filtrate

Two substances present in glomerular filtrate are water and glucose.

(iii) Urine

Urea is the main nitrogenous waste in urine.

(iv) Ultrafiltration, selective reabsorption, tubular secretion and Glomerular filtration.

(v) Glucose

(b) (i)

| Leaf | Liver |
|--|--|
| Glucose is stored in the form of starch. | Glucose is stored in the form of glycogen. |

(ii)

| ATP | AIDS |
|------------------------|--------------------------------------|
| Adenosine triphosphate | Acquired immune deficiency syndrome. |

(iii)

| Testosterone | Oestrogen |
|--|-----------------------------------|
| Testosterone is secreted by leydig cells, present in the testes. | Oestrogen is secreted by ovaries. |

(iv)

| Ureter | Urethra |
|---|--|
| Ureter carries urine from kidneys to the urinary bladder. | Urethra carries urine from urinary bladder to the outside of the body. |

(v)

| Hypotonic solution | Hypertonic solution |
|--|--|
| When a cell is placed in hypotonic solution, it gets swollen up and the condition is called turgidity. | When a cell is placed in hypertonic solution, it shrinks and the condition is called flaccidity. |

Answer 6.

- (a) (i) 1. RBCs, 2. WBC,
3. Platelets, 4. Plasma.

(ii)

| RBC | WBC |
|-------------------------------------|--|
| 1. These are biconcave disc shaped. | These are Irregular amoeboid shaped. |
| 2. RBCs do not have the nucleus. | They are characterized by the presence of a large central nucleus. |

(iii) Fibrinogen

(iv) About 120 days

(v) Absence of nucleus in RBCs make them biconcave shaped. This increases their surface area for absorbing more oxygen. They do not have mitochondria so they are unable to use oxygen for themselves, so all oxygen is transported and delivered to cells and tissues. Absence of endoplasmic reticulum make them flexible due to which these can easily move through narrow capillaries.

- (b) (i) Education makes people aware about the advantages of having a small family and birth control measures which in turn help in controlling the population of the country. Thus, education is very important for population control.

(ii) Placenta is a disc-like structure which connects foetus with mother. It delivers food, oxygen to the foetus and removes carbon dioxide, nitrogenous waste from foetus. It acts as barrier to germs and helps in secretion of Estrogen and Progesterone. Thus, placenta is an important structure for the development of foetus.

(iii) Green plants are the only autotrophs which prepare their own food. All other living beings depend upon green plants for their food. So, all the food chains begin with green plants.

(iv) If the soil is fertilized and not watered properly, then the concentration of the soil becomes high. As a result, soil becomes hypertonic as compared to the root cells of the plant, so exosmosis takes place which may result in drop of water level in plant and thus plant wilts.

(v) Sharp objects when put into the ears may rupture the eardrum, leading to deafness. So, we should not put sharp objects into our ears.

Answer 7.

- (a) (i) Absorption of water by roots, Transpiration through leaves.

Oil was added to water to prevent loss of water through evaporation.

(ii) The final weight of the plant will be lesser than its initial weight since the rate of transpiration is more than the rate of absorption of water hence leaves transpire, causing the reduction in the weight of the plant.

(iii) 1. In humid conditions, transpiration rate is very low so level of water in jar will not show much change.

2. On a windy day, transpiration rate increases so level of water in the jar will fall rapidly.

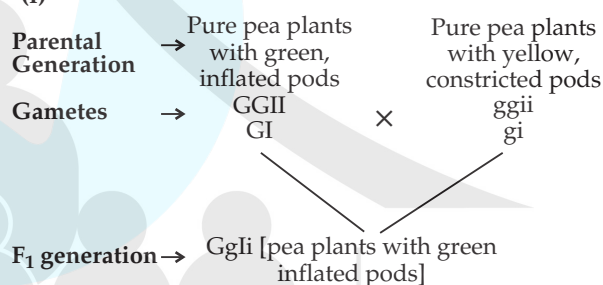
(iv) 1. Sunken stomata

2. Modification of leaves into spines.

3. Presence of thick layer of cuticle on the leaf surface.

(v) Guttation is the process of loss of water in the form of droplets from special openings called hydathodes present on the margins of leaves.

(b) (i)



Phenotype : Inflated, green pods

Genotype : GgIi.

Cross pollination has occurred to produce F₁ generation.

(ii) 9 : 3 : 3 : 1

(iii)

| Gametes ⇒ | GI | Gi | gI | gi |
|-----------|------|------|------|------|
| ↓ | | | | |
| GI | GGII | GGIi | GgII | GgIi |
| Gi | GGIi | GGii | GgIi | Ggii |
| gI | GgII | GgIi | ggII | ggIi |
| gi | GgIi | Ggii | ggIi | ggii |

So, the possible combination of gametes in F₂ generation are GI, Gi, gI, gi.

(iv) Law of segregation states that the two members of a pair of factors separate during the formation of gametes. They do not blend but segregate into different gametes.

(v) *Pisum sativum*.

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

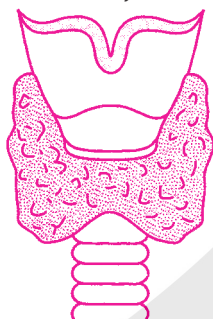
- (a) Name the following : [5]
- (i) The process by which root hairs absorb water from the soil.
 - (ii) The organ which produces urea.
 - (iii) The kind of lens required to correct Myopia.
 - (iv) The pituitary hormone which stimulates contraction of uterus during child birth.
 - (v) The international health organization which educates people in accident prevention.**
- (b) Choose the correct answer from each of the four options given below : [5]
- (i) The prime source of chlorofluorocarbons is :
 - (A) Vehicular emissions
 - (B) Industrial effluents
 - (C) Domestic sewage
 - (D) Refrigeration equipments
 - (ii) Penicillin obtained from a fungus is :**
 - (A) Antibiotic
 - (B) Antiseptic
 - (C) Antibody
 - (D) Antiserum
 - (iii) Marine fish when placed in tap water bursts because of :
 - (A) Endosmosis
 - (B) Exosmosis
 - (C) Diffusion
 - (D) Plasmolysis
 - (iv) Surgical method of sterilization in a woman involves cutting and tying of :
 - (A) Ureter
 - (B) Uterus
 - (C) Urethra
 - (D) Oviduct
 - (v) Synthesis phase in the cell cycle is called so, because of the synthesis of more :
 - (A) RNA
 - (B) RNA and proteins
 - (C) DNA
 - (D) Glucose
- (c) The statements given below are incorrect. Rewrite the correct statement by changing the underlined words of the statements : [5]
- (i) The Graafian follicle after ovulation turns into a hormone producing tissue called Corpus callosum.

- (ii) Deafness is caused due to the rupturing of the Pinna.
 - (iii) Gyri and Sulci are the folds of Cerebellum.
 - (iv) Free movement of solutes in and out of the cell takes place across the cell membrane.
 - (v) The solvent used to dissolve the chlorophyll pigments while testing a leaf for starch is Soda lime.
- (d) Given below are sets of five terms each. Rewrite the terms in correct order in a logical sequence. [5]
- Example : Large intestine, Stomach, Mouth, Small intestine, Oesophagus.
 Answer : Mouth → Oesophagus → Stomach → Small intestine → Large intestine.
- (i) Fibrin, Platelets, Thromboplastin, Fibrinogen, Thrombin.
 - (ii) Cochlea, Malleus, Pinna, Stapes, Incus.
 - (iii) Receptor, Spinal cord, Effector, Motor neuron, Sensory neuron.
 - (iv) Uterus, Parturition, Fertilisation, Gestation, Implantation.
 - (v) Caterpillar, Snake, Owl, Frog, Green leaves.
- (e) Choose the **ODD** one out of the following terms given and name the **CATEGORY** to which the others belong : [5]
- (i) Aqueous humour, Vitreous humour, Iris, Central canal
 - (ii) Formalin, Iodine, DDT, Lime**
 - (iii) ACTH, TSH, ADH, FSH
 - (iv) Phosphate, RNA, Sugar, Nitrogenous base
 - (v) Bile, Urea, Uric acid, Ammonia
- (f) Given below are group of terms. In each group the first pair indicates the relationship between the two terms. Rewrite and complete the second pair on a similar basis. [5]
- Example : Oxygen : Inspiration :: Carbon dioxide : Expiration
- (i) Eye : Optic nerve :: Ear : _____.
 - (ii) Cytoplasm : Cytokinesis :: Nucleus : _____.
 - (iii) TT : Homozygous :: Tt : _____.
 - (iv) Foetus : Amnion :: Heart : _____.
 - (v) Adenine : Thymine :: Cytosine : _____.
- (g) Match the items given in Column A with the most appropriate ones in Column B and rewrite the correct matching pairs : [5]

** Answer is not given due to change in the present syllabus.

| Column A | Column B |
|------------------------|----------------------|
| (i) Sacculus | Dynamic body balance |
| (ii) Birth rate | Hyperglycemia |
| (iii) DNA and histones | Hypoglycemia |
| (iv) Euro norms | Natality |
| (v) Diabetes mellitus | Static body balance |
| | Vehicular standards |
| | Nucleosome |

- (h) The diagram given below represents the location and structure of an endocrine gland. Study the same and answer the questions that follow : [5]



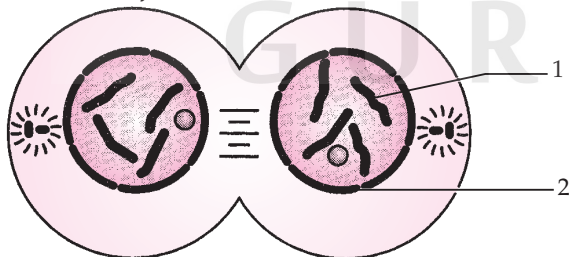
- Name the endocrine gland shown in the diagram.
- Name the secretion of the gland which regulates basal metabolism.
- Name the mineral element required for the synthesis of the above mentioned hormone.
- Name the disease caused due to undersecretion of the above mentioned hormone in children.
- Name the disease caused due to hypersecretion of the above mentioned hormone.

SECTION-II (40 Marks)

Attempt any four questions from this Section.

Question 2.

- (a) Study the diagram given below which represents a stage during the mitotic cell division and answer the questions that follow : [5]



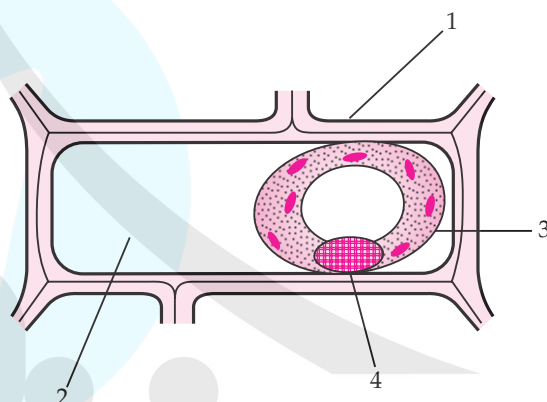
- Identify the stage giving suitable reasons.
- Name the parts numbered 1 and 2.
- What is the technical term for the division of nucleus ?
- Mention the stage the comes before the stage shown in the diagram. Draw a neat labelled diagram of the stage mentioned.

** Answer is not given due to change in the present syllabus.

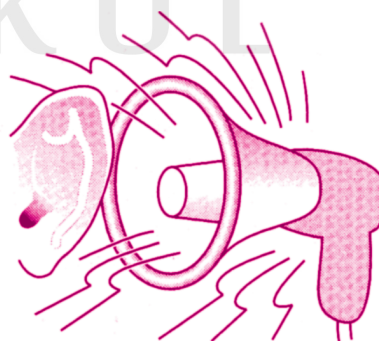
- Which is the cell division that results in half the number of chromosomes in daughter cells ?
- Differentiate between the following pairs on the basis of what is mentioned in brackets : [5]
 - Active Transport and Diffusion (significance in plants)
 - Demography and Population density (Definition)
 - Antibiotic and Antibody (Source)**
 - Renal cortex and Renal medulla (Parts of the nephrons present)
 - NADP and ATP (Expand the abbreviation)

Question 3.

- (a) The diagram given represents a plant cell after being placed in a strong sugar solution. Study the diagram and answer the questions that follow : [5]



- What is the state of the cell shown in the diagram ?
 - Name the structure that acts as a selectively permeable membrane.
 - Label the parts numbered 1 to 4 in the diagram.
 - How can the above cell be brought back to its original condition ? Mention the scientific term for the recovery of the cell.
 - State any two features of the above plant cell which is not present in animal cells.
- (b) Given below is a representation of kind of pollution. Study the same and answer the questions that follow : [5]



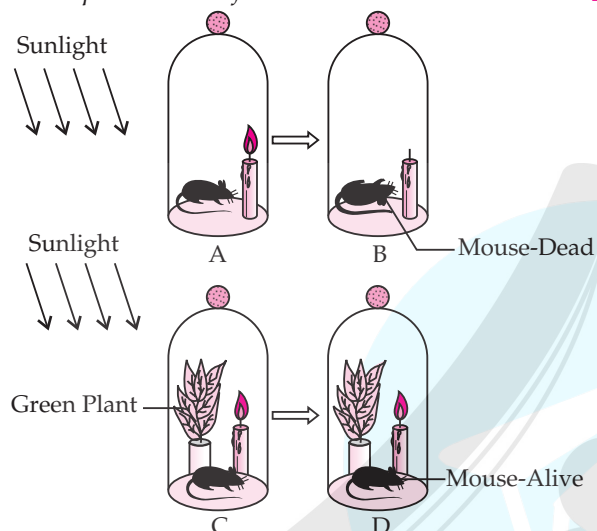
- Name the kind of pollution.
- List any three common sources of this pollution.
- Mention three harmful effects of this pollution on human health.

(iv) Explain the term 'Pollutant'.

(v) Name two soil pollutants.

Question 4.

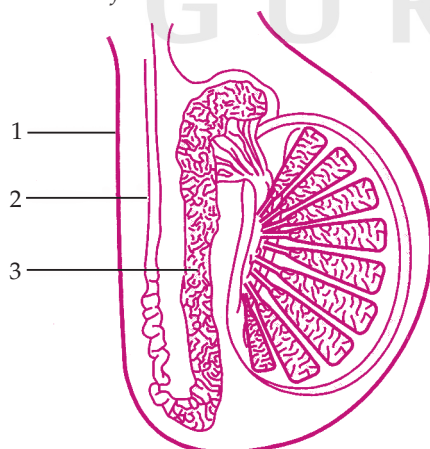
- (a) The diagrams given below represent the relationship between a mouse and a physiological process that occurs in green plants. Study the diagram and answer the questions that follow : [5]



- (i) Name the physiological process occurring in the green plant that has kept the mouse alive.
 (ii) Explain the physiological process mentioned above.
 (iii) Why did the mouse die in bell jar B ?
 (iv) What is the significance of the process as stated in (i) for life on earth ?
 (v) Represent the above mentioned physiological process in the form of a chemical equation.
- (b) Mention the exact location of the following : [5]
- | | |
|----------------------------|---------------------------|
| (i) Prostate gland | (ii) Myelin sheath |
| (iii) Islets of Langerhans | (iv) Semi-circular canals |
| (v) Eustachian tube. | |

Question 5.

- (a) The diagram shown below is the longitudinal section of a testis of man. Study it carefully and answer the questions that follow : [5]



(i) Label the parts numbered 1 to 3 in the diagram.

(ii) In which part of the testis are the sperms produced ?

(iii) State the functions of the parts labelled 1 and 3 in the diagram.

(iv) Name the cells that secrete Testosterone.

(v) Draw a neat, labelled diagram of a sperm.

- (b) Give biological reasons for the following statements : [5]

(i) Some women have facial hair like beard and moustache.

(ii) Cutting of trees should be discouraged.

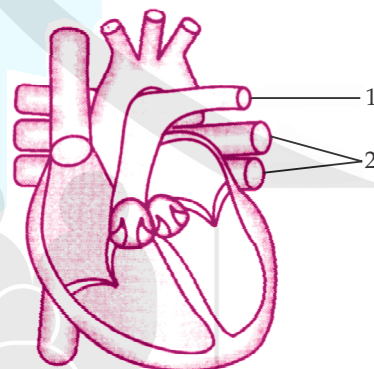
(iii) In some xerophytes leaves are modified into spines.

(iv) There is frequent urination in winter than in summer.

(v) The left ventricle of the heart has a thicker wall than the right ventricle.

Question 6.

- (a) The diagram given below represents a section of the human heart. Answer the questions that follow : [5]



(i) Which parts of heart are in the diastolic phase ? Give a reason to support your answer.

(ii) Label the parts numbered 1 and 2 in the diagram. What type of blood flows through them ?

(iii) What causes the heart sounds 'LUBB' and 'DUP' ?

(iv) Name the blood vessels that supply oxygenated blood to the heart muscles.

(v) Draw neat labelled diagrams of a cross section of an artery and a vein.

- (b) Give appropriate **biological/technical** terms for the following : [5]

(i) The type of immunity that exists in our body due to our genetic makeup.**

(ii) The suppressed allele of a gene.

(iii) The accessory gland in human males whose secretion activates the sperms.

(iv) An apparatus that measures the rate of water uptake in a cut shoot due to transpiration.

(v) The kind of twins formed from two fertilised eggs.

(vi) A pair of corresponding chromosomes of the same size and shape, one from each parent.

** Answer is not given due to change in the present syllabus.

(vii) The mild chemical substance which when applied on the body kills germs.**

(viii) The type of waste generated in hospitals and pathological laboratories.

(ix) The antiseptic substance in tears.

(x) Cellular components of blood containing haemoglobin.

Question 7.

(a) In a homozygous pea plant, axial flowers (A) are dominant over terminal flowers (a). [5]

(i) What is the phenotype and genotype of the F_1 generation if a plant bearing pure axial flowers is crossed with a plant bearing pure terminal flowers?

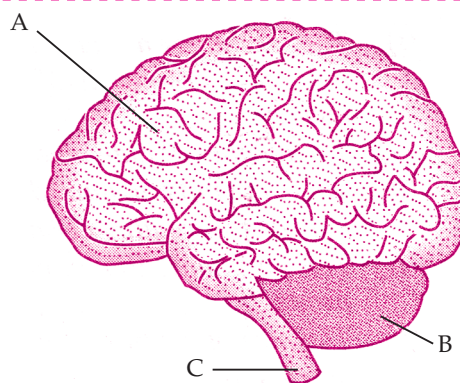
(ii) Draw a Punnett square board to show the gametes and offsprings when both the parent plants are heterozygous for axial flowers.

(iii) What is the phenotypic ratio and genotypic ratio of the above cross shown in (ii)?

(iv) State Mendel's Law of Dominance.

(v) Name two genetic disorders commonly seen in human males.

(b) The diagram given below is an external view of the human brain. Study the same and answer the questions that follow : [5]



(i) Name the parts labelled A, B and C in the diagram.

(ii) State the main functions of the parts labelled A and B.

(iii) What are the structural and functional units of the brain? How are the parts of these units arranged in A and B?

(iv) Mention the collective term for the membranes covering the brain.

(v) What is the function of Cerebrospinal fluid?

ANSWERS

SECTION-I

Answer 1.

(a) (i) Osmosis [Endosmosis] (ii) Liver
(iii) Concave lens (iv) Oxytocin

(b) (i) (D) Refrigeration equipments (ii) (A) Antibiotic (iii) (A) Endosmosis
(iv) (D) Oviduct (v) (C) DNA

(c) (i) The Graafian follicle after ovulation turns into a hormone producing tissue called **Corpus luteum**.

(ii) Deafness is caused due to the rupturing of the **ear drum/tympanum**.

(iii) Gyri and Sulci are the folds of **Cerebrum**.

(iv) Free movement of solutes in and out of the cell takes place across the **cell wall**.

(v) The solvent used to dissolve the chlorophyll pigments while testing a leaf for starch is **methylated spirit**.

(d) (i) Platelets → Thromboplastin → Thrombin
→ Fibrinogen → Fibrin

(ii) Pinna → Malleus → Incus → Stapes → Cochlea

(iii) Receptor → Sensory neuron → Spinal cord
→ Motor neuron → Effector

(iv) Fertilisation → Uterus → Implantation → Gestation → Parturition

(v) Green leaves → Caterpillar → Frog → Snake → Owl

(e) (i) **Odd one** : Central canal

Category : Rest are found in our eye whereas central canal is seen in spinal cord.

(iii) **Odd one** : ADH

Category : Rest are hormones secreted from anterior pituitary whereas ADH is secreted from posterior pituitary.

(iv) **Odd one** : RNA

Category : Rest are components of a nucleotide whereas RNA is a nucleic acid.

(v) **Odd one** : Bile

Category : Rest are nitrogenous metabolic waste whereas bile is produced in liver and stored in gall bladder and play an important role in digestion i.e., emulsification of fats.

(f) (i) Eye : Optic nerve :: Ear : Auditory nerve.

(ii) Cytoplasm : Cytokinesis :: Nucleus : Karyokinesis.

(iii) TT : Homozygous :: Tt : Heterozygous.

(iv) Foetus : Amnion :: Heart : Pericardium.

(v) Adenine : Thymine :: Cytosine : Guanine.

** Answer is not given due to change in the present syllabus.

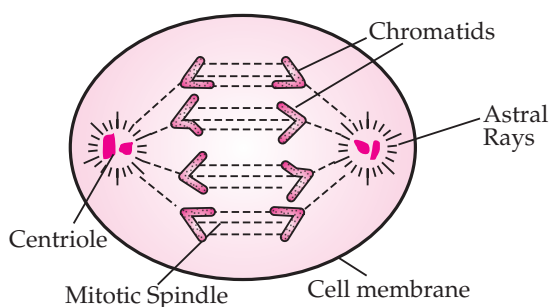
| (g) | Column A | Column B |
|-------|-------------------|-----------------------|
| (i) | Sacculus | — Static body balance |
| (ii) | Birth rate | — Natality |
| (iii) | DNA and histones | — Nucleosome |
| (iv) | Euronorms | — Vehicular standards |
| (v) | Diabetes mellitus | — Hyperglycemia |

- (h) (i) The endocrine gland shown in the diagram is thyroid gland.
- (ii) The secretion of this gland is thyroxine which regulates basal metabolism.
- (iii) The mineral element required for synthesis of thyroxine is iodine.
- (iv) Cretinism is caused due to undersecretion of thyroxine in children.
- (v) Exophthalmic goitre is caused due to hypersecretion of thyroxine.

SECTION-II

Answer 2.

- (a) (i) The stage shown in the figure is telophase due to the following reasons :
1. Nuclear membrane and nucleolus have reappeared.
 2. Spindle fibres are disappearing.
 3. Furrows have been formed for the division of cytoplasm.
 4. Sister chromatids reach opposite poles.
 5. The two sets of daughter chromosomes have reached the opposite poles.
- (ii) 1. Chromatin fibres
2. Nuclear membrane
- (iii) The division of nucleus is called Karyokinesis.
- (iv) The stage comes before this stage that is shown in the diagram is anaphase.



- (v) Meiosis is the cell division that results in half the number of chromosomes in daughter cells.

(b) (i)

| Active Transport | Diffusion |
|---|---|
| In plants, the mineral nutrients like nitrates, sulphates, potassium etc. are taken up by root hairs from the soil by active transport. | Gaseous exchange during respiration and photosynthesis in plants occurs by diffusion process. |

(ii)

| Demography | Population Density |
|---|---|
| Statistical study of human population specially with reference to size and density, distribution and other vital statistics is called demography. | Population density is the number of individuals per square kilometre at any given time. |

(iv)

| Renal Cortex | Renal Medulla |
|--|---|
| Bowman's capsule, proximal convoluted tubule, distal convoluted tubule lies in the renal cortex. | Loop of Henle which is the U-shaped part of nephron lies in renal medulla along with the collecting duct. |

(v)

| NADP | ATP |
|--|--------------------------------|
| NADP is Nicotinamide Adenine Dinucleotide Phosphate. | ATP is Adenosine Triphosphate. |

Answer 3.

- (a) (i) The cell shown in the diagram is in flaccid [plasmolysed] state.
- (ii) Plasma membrane acts as a selectively permeable membrane.
- (iii) 1. Cell wall
2. Strong sugar solution
3. Cell membrane
4. Nucleus
- (iv) If this flaccid or plasmolysed cell is placed in water, its protoplasm again swells up and cell can retain back its original condition. This recovery of the cell is called deplasmolysis.
- (v) In plant cell, cell wall, a large vacuole in the centre and chloroplasts are present which is not seen in an animal cell.
- (b) (i) The diagram shown represents noise pollution.
- (ii) The three common sources of noise pollution are :
1. Industrial machines and workshops

2. Loudspeakers and musical bands
3. Trains and automobiles on street
- (iii) The three harmful effects of noise pollution on human health are :
 1. Interrupts concentration of thought and disturbs peace of mind.
 2. Disturbs sleep and leads to nervous irritability.
 3. A sudden loud sound can damage eardrum and prolonged noise leads to deafness.
- (iv) Pollutant is any such constituent which causes pollution.

OR

A pollutant is a substance or energy introduced into the environment that has undesired effects, or adversely affects the usefulness of a resource.

(v) The two soil pollutants are :

1. Industrial waste like chemical residues, metallic ash, fly ash etc.
2. Chemical fertilizers and pesticides like DDT.

Answer 4.

- (a) (i) Photosynthesis is the physiological process that is occurring in the green plant. It releases oxygen which kept the mouse alive.
- (ii) Photosynthesis is the process by which living plant cells containing chlorophyll produce food substances like glucose and starch from carbon dioxide and water by using light energy. Plants release oxygen gas during this process which is a life supporter for the living organisms on the earth's surface.
- (iii) In bell jar B, there is no green plant so no oxygen is produced by photosynthesis process. The oxygen gas that is present in the bell jar has already been consumed by the mouse and the burning candle. So due to lack of oxygen, the mouse died and also the candle got extinguished.
- (iv) The significance of photosynthesis process is that it is the only biological process which releases oxygen into the atmosphere that supports all life forms on the earth's surface. Green plants synthesise their food by photosynthesis. All organisms are directly or indirectly dependent on green plants for their food.
- (v)
$$6\text{CO}_2 + 12\text{H}_2\text{O} \xrightarrow[\text{Chlorophyll}]{\text{Light energy}} \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{H}_2\text{O} + 6\text{O}_2$$
- (b) (i) **Prostate gland** : It surrounds the urethra close to its origin from the urinary bladder.
- (ii) **Myelin sheath** : It is an insulating envelope that surrounds the axon of nerve cells.
- (iii) **Islets of Langerhans** : It is a special group of hormone secreting cells found in the pancreas.

(iv) **Semi-circular canals** : They are a set of three canals found in inner ear which are arranged at right angles to each other in three different planes so that one is horizontal and other two are vertical.

(v) **Eustachian tube** : It connects the cavity of the middle ear with the throat.

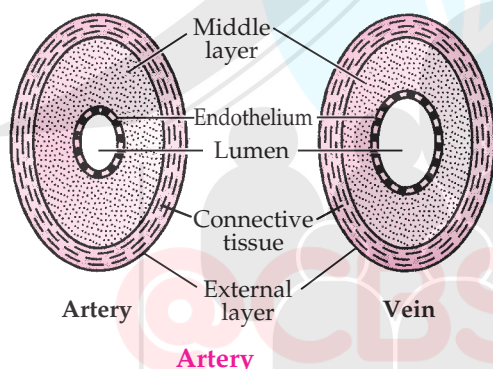
Answer 5.

- (a) (i) 1- Scrotum
2- Vas deferens/ Sperm duct /Vasa deferentia
3- Epididymis
- (ii) The sperms are produced in seminiferous tubules.
- (iii) The function of scrotum or scrotal sacs is that it contains the testis and its temperature is 2°C or 3°C lower than body temperature that favours production of sperms.
- The function of epididymis is that it stores the sperms for some days during which they mature and become motile.
- (iv) The interstitial cells or Leydig cells produce male hormone testosterone.
- (v) Refer to ICSE Paper, 2018, Answer 3(a) (v).
- (b) (i) When women have high level of androgens in their blood or if there is an overgrowth of adrenal cortex in a mature woman, she develops certain male characteristics such as a beard, moustaches and deep male voice. This condition is known as adrenal virilism.
- (ii) Cutting of trees should be discouraged because if there were no green plants, all life on the earth would come to an end. Trees provides food and oxygen to all by the process of photosynthesis. Oxygen is the life supporting gas. They release water in the form of vapours by transpiration process which helps in bringing rain, so they also affect our climate. They also absorb carbon dioxide from the atmosphere for the process of photosynthesis. This helps in controlling global warming.
- (iii) In some xerophytes, leaves are modified into spines to reduce transpiration process as xerophytes are mainly found in deserts where there is water scarcity. As leaves are modified into spines, their surface area is reduced hence transpiration will be less.
- (iv) During winter, surrounding temperature is low and there is almost no sweating. So water is not lost by perspiration. Hence, water along with waste substances is mainly removed through urine. So, we urinate frequently in winter than in summer.
- (v) The left ventricle pumps blood to the farthest points of the body like toes, feet, brain and other parts of the body whereas right

ventricle pumps blood only up to the lungs. So walls of left ventricle are thicker than walls of right ventricle.

Answer 6.

- (a) (i) Ventricles are in the diastolic phase as semilunar valves at root of aorta and pulmonary artery are closed and bicuspid and tricuspid valves are open. Blood enters from atria to ventricles through atrio-ventricular valves.
- (ii) 1–Pulmonary artery 2–Pulmonary vein
Deoxygenated blood flows through pulmonary artery and oxygenated blood flows through pulmonary veins.
- (iii) LUBB sound is caused by the closure of atrio-ventricular valves *i.e.*, tricuspid and bicuspid valves. Due to closure of semilunar valves located at the root of pulmonary artery and aorta, DUP sound is produced.
- (iv) Coronary artery supplies oxygenated blood to the heart muscles.
- (v)



- (b) (ii) Recessive allele
(iii) Seminal vesicles
(iv) Ganong's potometer
(v) Fraternal twins
(vi) Homologous chromosomes
(viii) Biomedical waste
(ix) Lysozyme
(x) RBCs/ Erythrocytes

Answer 7.

- (a) (i) The phenotype of the F_1 generation is plants with axial flowers will be produced. The genotype of F_1 generation plants is Aa, *i.e.*, **all plants are heterozygous dominant for axial flowers.**

(ii)

| | | |
|----|----|----|
| Aa | × | Aa |
| | A | a |
| A | AA | Aa |
| a | Aa | aa |

(iii) From the above cross, 3 plants with axial flowers (AA, Aa, Aa) and 1 plant with terminal flower (aa) is produced. So, phenotypic ratio is

3 : 1. Genotypic ratio is 1 : 2 : 1 *i.e.*, 1AA : 2Aa : 1aa

(iv) Mendel's Law of Dominance states that – "Out of a pair of contrasting characters present together, only one is able to express itself while the other remains suppressed. The one that expresses itself is the dominant character and the one unexpressed is the recessive. The recessive character can express only when the pair is homozygous recessive."

(v) Haemophilia and colour blindness are two common genetic disorders commonly seen in human males.

- (b) (i) A – Cerebrum
B – Cerebellum
C – Spinal cord

(ii) Cerebrum is the seat of intelligence, consciousness and will power. It controls all voluntary activities. Cerebellum coordinates muscular activities and maintains balance of the body.

(iii) Neuron is the structural and functional unit of the brain. In cerebrum, outer portion contains cell bodies of the neuron whereas inner portion contains axons of the neurons. Whereas in spinal cord, outer portion contains axons and inner portion contains cell bodies of neurons.

(iv) The membranes covering the brain are meninges which are a three membranous covering.

(v) Cerebrospinal fluid is a watery fluid found within the space of the covering membrane and also in ventricles of brain and central canal of spinal cord. It acts like a cushion to protect the brain from mechanical shocks. It also acts as a medium for the exchange of food materials, waste products and respiratory gases with neurons.



QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

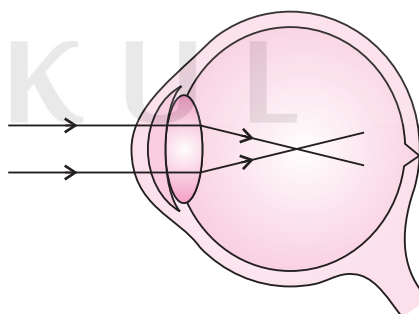
- (a) Name the following : [5]
- The exchange of chromatid parts between the maternal and the paternal chromatids of a pair of homologous chromosomes during meiosis.
 - The number of individuals inhabiting per unit area.
 - The immunity acquired by providing ready-made antibodies from outside for treating certain infectious diseases.**
 - The pollutants that cannot be broken down to simple and harmless products.
 - The part of the brain that carries impulses from one hemisphere of the cerebellum to the other.
- (b) Choose the correct answer from each of the four options given below : [5]
- A plant cell may burst when :
 - Turgor pressure equalises wall pressure
 - Turgor pressure exceeds wall pressure
 - Wall pressure exceeds turgor pressure
 - None of the above
 - The individual flattened stacks of membranous structures inside the chloroplasts are known as :
 - Grana
 - Stroma
 - Thylakoids
 - Cristae
 - The nephrons discharge their urine at the :
 - Urinary bladder
 - Urethra
 - Renal pelvis
 - Renal pyramid
 - Gigantism and Acromegaly are due to :
 - Hyposecretion of Thyroxine
 - Hyposecretion of Growth hormone
 - Hypersecretion of Thyroxine
 - Hypersecretion of Growth hormone
 - The mineral ion needed for the formation of blood clot is :
 - Potassium
 - Sodium
 - Calcium
 - Iron
- (c) In each set of terms given below, there is an odd one and cannot be grouped in the same category to which the other three belong. Identify the odd term in each set and name the category to which the remaining three belong. [5]

Example : Ovary, Fallopian tube, Ureter, Uterus.

Odd term : Ureter

Category : Parts of female reproductive system.

- Sewage, Newspaper, Styrofoam, Hay.
 - Thymine, Cytosine, Adenine, Pepsin.
 - Malleus, Iris, Stapes, Incus.
 - Cortisone, Somatotropin, Adrenocorticotrophic hormone, Vasopressin.
 - Typhoid, Haemophilia, Albinism, Colour blindness.
- (d) Complete the following paragraph by filling in the blanks (i) to (v) with appropriate words : [5]
- The amount of urine output is under the regulation of a hormone called (i) _____ secreted by the (ii) _____ lobe of the pituitary gland. If this hormone secretion is reduced, there is an increased production of urine. This disorder is called (iii) _____. Sometimes excess glucose is passed with urine due to hyposecretion of another hormone called (iv) _____ leading to the cause of a disease called (v) _____.
- (e) State the exact location of the following structures : [5]
- Centromere
 - Chordae tendinae
 - Thyroid gland
 - Ciliary body
 - Proximal convoluted tubule
- (f) Given below is a diagram depicting a defect of the human eye. Study the same and then answer the questions that follow : [5]



- Name the defect shown in the diagram.
- What are the two possible reasons that cause this defect ?
- Name the type of lens used to correct this defect.
- With the help of a diagram show how the defect shown above is rectified using a suitable lens.

** Answer is not given due to change in the present syllabus.

- (g) Given in the box below are a set of 14 biological terms. Of these, 12 can be paired into 6 matching pairs. Out of the six pairs, one has been done for you as an example.

[5]

Example : Endosmosis — Turgid cell.

Cushing's syndrome, Turgid cell, Iris, Free of rod and cone cells, Colour of eyes, Hypoglycemia, Active transport, Acrosome, Addison's disease, Blind spot, Hyperglycemia, Spermatozoa, Endosmosis, Clotting of blood.

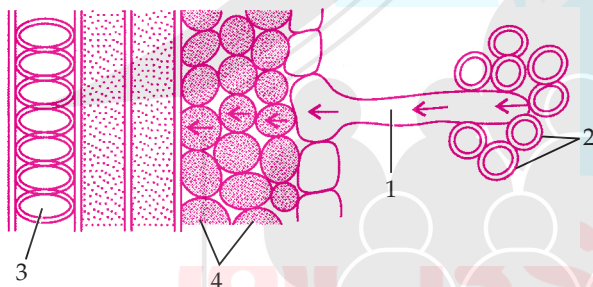
- (h) State the main function of the following : [5]
- (i) Lymphocytes of blood (ii) Leydig cells
(iii) Guard cells (iv) Eustachian tube
(v) Corpus luteum

SECTION-II (40 Marks)

Attempt any four questions from this Section.

Question 2.

- (a) The figure given below is a diagrammatic representation of a part of the cross section of the root in the root hair zone. Study the same and then answer the questions that follow : [5]



- (i) Name the parts indicated by the guidelines 1 to 4.
(ii) Which is the process that enables the passage of water from the soil into the root hair ?
(iii) Name the pressure that is responsible for the movement of water in the direction indicated by the arrows. Define it.
(iv) Due to an excess of this pressure sometimes drops of water are found along the leaf margins of some plants especially in the early mornings. What is the phenomenon called ?
(v) Draw a well labelled diagram of the root hair cell as it would appear if an excess of fertilizer is added to the soil close to it.
- (b) Differentiate between the following pairs on the basis of what is mentioned within brackets : [5]
- (i) Human skin cell and human ovum (number of chromosomes)
(ii) Sperm duct and fallopian tube (function).
(iii) Red Cross and WHO (one activity).*

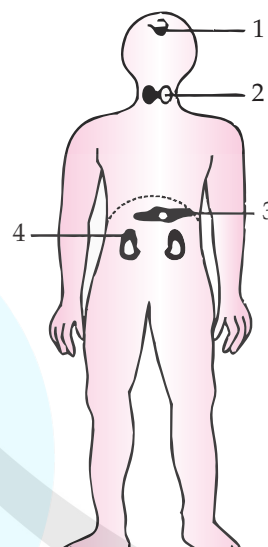
** Answer is not given due to change in the present syllabus.

- (iv) Rod cells and cone cells (pigment).

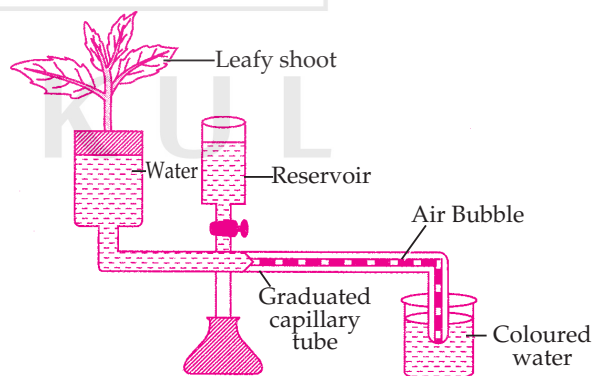
- (v) LUBB and DUPP (names of the valves whose closure produce the sound).

Question 3.

- (a) Given below is the outline of the human body showing the important glands : [5]



- (i) Name the glands marked 1 to 4.
(ii) Name the hormone secreted by part 2. Give one important function of this hormone.
(iii) Name the endocrine part of the part numbered 3.
(iv) Why is the part labelled 1 called the master gland ? Which part of the forebrain controls the gland labelled 1 ?
(v) Name the gland that secretes the 'emergency hormone'.
- (b) The diagram of an apparatus given below demonstrates a particular process in plants. Study the same and answer the questions that follow : [5]



- (i) Name the apparatus.
(ii) Which phenomenon is demonstrated by this apparatus ?
(iii) Explain the phenomenon mentioned in (ii) above.
(iv) State two limitations of using this apparatus.

(v) What is the importance of the air bubble in the experiment ?

(vi) Name the structure in a plant through which the above process takes place.

Question 4.

(a) (i) Draw a well labelled diagram of the membranous labyrinth found in the inner ear. [5]

(ii) Based on the diagram drawn above in (i) give a suitable term for each of the following descriptions :

(1) The sensory cells that helps in hearing.

(2) The part that is responsible for static balance of the body.

(3) The membrane covered opening that connects the middle ear to the inner ear.

(4) The fluid present in the middle chamber of cochlea.

(5) The structure that maintains dynamic equilibrium of the body.

(b) Give the Biological/technical term for the following : [5]

(i) Complete stoppage of menstrual cycle in females.

(ii) Pigment providing colour to urine.

(iii) The vein which drains the blood from the intestine to the liver.

(iv) The canal through which testes descend into the scrotum just before the birth of a male baby.

(v) The process causing an undesirable change in the environment.

(vi) The removal of nitrogenous wastes from the body.

(vii) The repeating components of each DNA strand lengthwise.

(viii) An alteration in the genetic material that can be inherited.

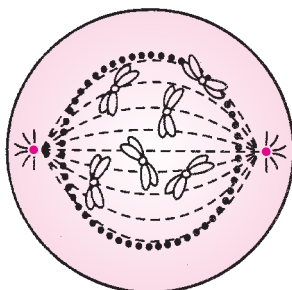
(ix) The process of uptake of mineral ions against the concentration gradient using energy from the cell.

(x) Blood vessels carrying blood to the left atrium.

Question 5.

(a) The given diagram shows a stage during mitotic division in an animal cell : [5]

(i) Identify the stage. Give a reason to support your answer.



(ii) Draw a neat labelled diagram of the cell as it would appear in the next stage. Name the stage.

(iii) In what two ways is mitotic division in an animal cell different from the mitotic division in a plant cell ?

(iv) Name the type of cell division that occurs during :

(A) Growth of a shoot.

(B) Formation of pollen grains.

(b) Give scientific reasons for the following statements : [5]

(i) Colour blindness is more common in men than in women.

(ii) Injury to medulla oblongata leads to death.

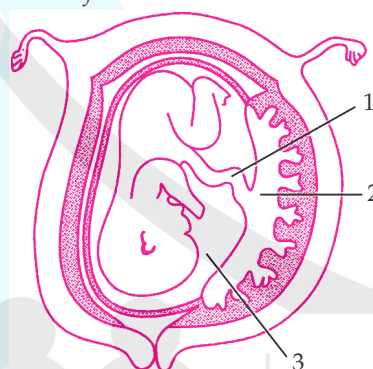
(iii) When an ovum gets fertilized, menstrual cycle stops temporarily in a woman.

(iv) Mature erythrocytes in humans lack nucleus and mitochondria.

(v) Blood flows in arteries in spurts and is under pressure.

Question 6.

(a) The diagram given below is that of a developing human foetus. Study the diagram and then answer the questions that follow : [5]



(i) Label the parts numbered 1 to 3 in the diagram.

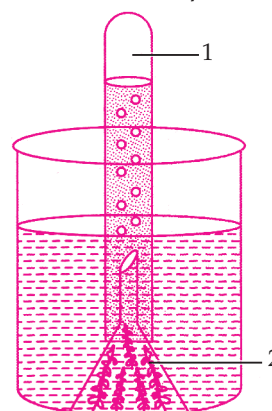
(ii) Mention any two functions of the part labelled 2 in the diagram.

(iii) Explain the significance of the part numbered 3 in the diagram.

(iv) Define the term 'Gestation'. What is the normal gestational period of the developing human embryo ?

(v) Mention the sex chromosomes in a male and female embryo.

(b) The following diagram demonstrates a physiological process taking place in green plants. The whole set up was placed in bright sunlight for several hours. Study the diagram and answer the questions that follow : [5]



- (i) What aspect of the physiological process is being examined ?
- (ii) Explain the physiological process mentioned in (i) above.
- (iii) Label the parts numbered 1 and 2 in the diagram.
- (iv) Write a well-balanced chemical equation for the physiological process explained in (ii) above.
- (v) What would happen to the rate of bubbling of the gas if a pinch of sodium bicarbonate is added to the water in the beaker ? Explain your answer.

Question 7.

- (a) A homozygous tall plant (T) bearing red coloured (R) flowers is crossed with a homozygous dwarf (t) plant bearing white (r) flowers : [5]
- (i) Give the genotype and phenotype of the plants of F_1 generation.

- (ii) Mention the possible combinations of the gametes that can be obtained from the F_1 hybrid plant.
- (iii) State the Mendel's law of Independent Assortment.
- (iv) Mention the phenotypes of the offsprings obtained in F_2 generation.
- (v) What is the phenotypic ratio obtained in F_2 generation ?

(b) Briefly explain the following terms : [5]

- (i) Reflex action
- (ii) Power of accommodation
- (iii) Photophosphorylation
- (iv) Hormone
- (v) Synapse

ANSWERS**SECTION-I****Answer 1.**

- (a) (i) Crossing over
- (ii) Population density
- (iv) Non-biodegradable pollutants
- (v) Pons varolii
- (b) (i) (B) Turgor pressure exceeds wall pressure
- (ii) (C) Thylakoids
- (iii) (C) Renal pelvis
- (iv) (D) Hypersecretion of growth hormone
- (v) (C) Calcium
- (c) (i) **Odd term** : Styrofoam
Category : Biodegradable materials
- (ii) **Odd term** : Pepsin
Category : Nitrogenous bases of DNA
- (iii) **Odd term** : Iris
Category : Ear ossicles
- (iv) **Odd term** : Cortisone
Category : Hormones secreted by pituitary gland
- (v) **Odd term** : Typhoid
Category : Genetic disorders
- (d) (i) Antidiuretic hormone (ADH) or Vasopressin
- (ii) Posterior
- (iii) Diabetes insipidus
- (iv) Insulin
- (v) Diabetes mellitus
- (e) (i) **Centromere** : A part of chromosome is marked by a primary constriction which divides the chromosome into two arms. In this region of primary constriction, lies the centromere, which joins the two sister chromatids.

(ii) **Chordae tendinae** : Between bicuspid/tricuspid valves and papillary muscles of the heart.(iii) **Thyroid gland** : Thyroid gland is present below larynx over the upper part of the trachea in the neck region.(iv) **Ciliary body** : At the junction of choroid and iris.(v) **Proximal convoluted tubule** : At the cortex of the kidney, just below the Bowman's capsule.

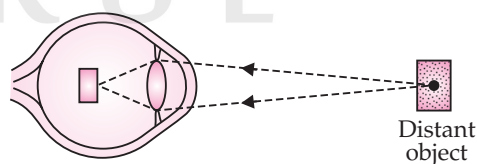
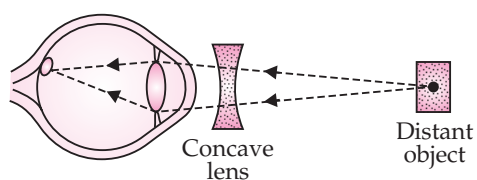
(f) (i) The defect shown in the diagram is called Short-sightedness or Myopia.

(ii) This defect may arise due to :

1. Excessive curvature of the eye lens.
2. Elongation of the eyeball.

(iii) The defect can be corrected by using spectacles with concave or divergent lenses.

(iv) Diagram showing rectification of the defect :

**Myopia****Myopia with correction**

(g)

| | | |
|----|----------------------------|--------------------|
| 1. | Cushing's syndrome | Hyperglycemia |
| 2. | Iris | Colour of the eyes |
| 3. | Free of rod and cone cells | Blind spot |
| 4. | Hypoglycemia | Addison's disease |
| 5. | Acrosome | Spermatozoa |

(h) (i) **Lymphocytes of blood** : These are the defense cells of our body. These produce antibodies for immobilising the foreign particles and their toxins. They are thus, the immunity arsenals of our body.

(ii) **Leydig cells** : Also called 'Interstitial cells'. Secrete male sex hormone testosterone.

(iii) **Guard cells** : Regulates the opening and closing of stomata in leaf to facilitate transpiration and exchange of gases.

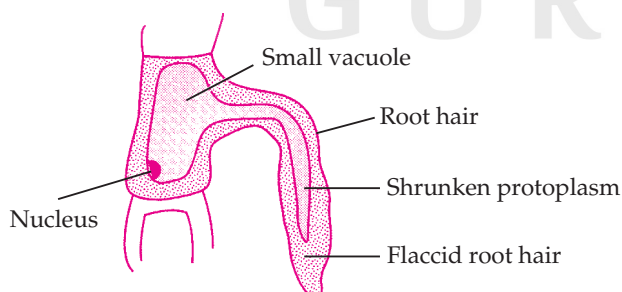
(iv) **Eustachian tube** : Balances air pressure on either sides of eardrum, so that eardrum can vibrate freely.

(v) **Corpus luteum** : Secretes hormones oestrogen, progesterone and relaxin.

SECTION-II

Answer 2.

- (a) (i) 1. Root hair cell (Epiblema cell)
2. Soil particles
3. Xylem vessel
4. Cortex cells
- (ii) The process that enables the passage of water from the soil into the root hair is osmosis.
- (iii) The pressure is root pressure. Root pressure is a positive pressure found in the xylem channel of some plants due to inflow of water.
- (iv) This phenomenon is called guttation.
- (v) Diagram of root hair cell when excessive fertilizers are added :



The excessive fertilizers when added to soil create hypertonic conditions near the root hair and leads to the movement of water from the root hair cell to the outside environment. This causes the root hair to shrink.

(b) (i)

| Human skin cell | Human ovum |
|---|--|
| Human skin cell is a somatic cell with diploid number of chromosomes, i.e., 46. | Human ovum is female gamete bearing haploid number of chromosomes, i.e., 23. |

(ii)

| Sperm duct | Fallopian tube |
|---|--|
| Sperm duct, also known as vas deferens, receives the sperms from the epididymis and transports them along with secretions of seminal vesicles, prostate gland and cowper's gland to the tip of the urethra. | Also known as oviduct, it receives the secondary oocyte from the ovary and also act as the site of fertilisation of egg and sperm. |

(iv)

| Rod cells | Cone cells |
|---|--|
| Photoreceptor cells with a visual purple pigment called 'Rhodopsin' that aids in twilight vision (dim light or night vision). | In cone cells, the photosensitive pigment is visual violet or 'Iodopsin' which facilitates vision in day light or bright artificial light. |

(v)

| LUBB | DUPP |
|--|--|
| It is the first heart sound produced by the closure of the bicuspid and tricuspid atrioventricular valves. | It is the second heart sound produced by the closure of pulmonary and aortic semilunar valves. |

Answer 3.

- (a) (i) 1. Pituitary gland 2. Thyroid gland
3. Pancreas 4. Adrenal gland
- (ii) The hormone secreted by part 2 is Thyroxine. Thyroxine controls the Basal Metabolic Rate (BMR) of the body and maintains temperature by regulating production of energy.
- (iii) The endocrine part of the gland numbered 3 is called Islet of Langerhans.
- (iv) The part labelled 1 is the pituitary gland and it is called the 'Master gland' because it secretes hormones which controls the secretions of other endocrine glands of our body.

The hypothalamus part of the forebrain controls the pituitary gland and is thus called the 'Master of master gland'.

(v) Adrenal gland secretes the emergency hormone i.e., adrenaline.

(b) (i) The apparatus is called Ganong's Potometer.

(ii) The potometer demonstrates the phenomenon of transpiration.

(iii) The loss of water in the form of water vapour from the aerial parts of the plants is called 'Transpiration'.

(iv) Limitations of using this apparatus :

1. Potometer cannot measure rate of transpiration precisely as not all of the water taken up by plant is used for transpiration.

2. Potometer only measures the rate of uptake of water.

3. Introducing an air bubble is difficult.

4. Twig may not be active for a long time.

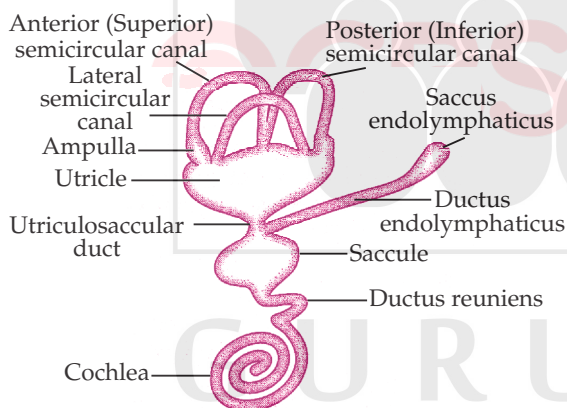
* Any two of the above can be used.

(v) The movement of air bubble along the scale gives a measure of water absorbed by the plant over a period of time and hence indicates the rate of transpiration.

(vi) Stomata

Answer 4.

(a) (i) Diagram showing membranous labyrinth found in the inner ear :



- (ii) 1. Sensory cells that help in hearing are called **organ of corti**.
 2. The **utricle and saccule part of the inner ear** have presence of gravity receptors that aid in maintaining static balance of the body.
 3. **Oval window or fenestra ovalis** is the membrane covered opening that connects the middle ear to the inner ear.
 4. **Endolymph** is the fluid present in the middle chamber of cochlea.
 5. **Ampulla region of semi circular canal** maintains dynamic balance of the body.

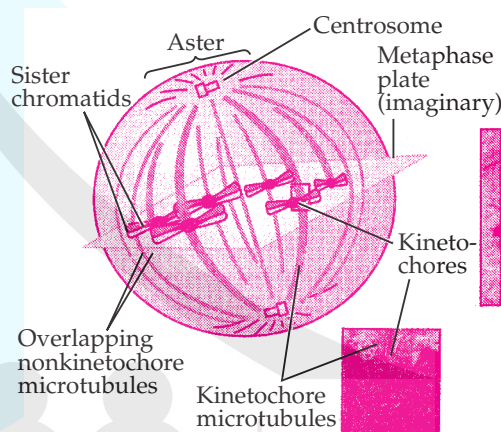
- (b) (i) Menopause (ii) Urochrome
 (iii) Hepatic portal vein (iv) Inguinal canal
 (v) Pollution (vi) Excretion
 (vii) Nucleotides (viii) Mutation
 (ix) Active transport (x) Pulmonary veins

Answer 5.

(a) (i) The diagram represents the Prophase stage (Late prophase stage).

The stage is Late prophase as there is no nucleolus and cell organelles like Golgi body, endoplasmic reticulum have become inconspicuous, nuclear envelope is shown disintegrated into small vesicles and the two asters have reached the two poles.

(ii) Metaphase stage



(iii) Any two differences from those given below :

| | Animal cell mitosis | Plant cell mitosis |
|----|---|--|
| 1. | It occurs in almost all type of somatic cells of the organism. | It occurs in the growing tips or meristems. |
| 2. | An animal cell becomes rounded before cell division. | There is no change in the shape of plant cell before division. |
| 3. | Presence of centrosome is essential. | Centrosome is not present. |
| 4. | Asters are present. | Asters are absent. |
| 5. | Cytokinesis occurs by cleavage wherein a furrow is formed dividing the mother cell into two daughter cells. | Cytokinesis occurs commonly by the cell plate method wherein a solid middle lamella develops dividing the mother cell into two daughter cells. |

(iv) (A) Mitosis (B) Meiosis

- (b) (i) Colour blindness is more common in men than in women because it is an X-linked recessive disorder. Men have just one X-chromosome and if that single X-chromosome has the allele for colour blindness, it gets expressed while in women there are 2 copies of X-chromosome in which defective allele of X-chromosome gets masked by the effects of other X-chromosome.
- (ii) Medulla oblongata forms the innermost part of the brain. It controls various involuntary movements of the body like rate of heart beat, respiration, etc. Thus, any injury to medulla oblongata will hamper these involuntary activities and thus might result in death due to stoppage of heart beat and breathing.
- (iii) In case of fertilisation of an ovum by a sperm, the corpus luteum persists and continues to secrete progesterone. Progesterone maintains endometrial lining and prevents maturation of another ovum, thus temporarily stopping the menstrual cycle.
- (iv) Mature erythrocytes in humans lack a nucleus, so as to provide more surface area for transport of oxygen to haemoglobin in blood. They also lack mitochondria which prevents the use of oxygen for themselves in cellular respiration, thus transporting all oxygen absorbed.
- (v) As the ventricles of the heart contract, they push blood into the small lumen of the arteries with a great force, thus making the blood in arteries flow in spurts and under pressure.

Answer 6.

- (a) (i) 1. Umbilical cord
2. Placenta
3. Amniotic fluid filled in amniotic cavity
- (ii) Functions of the part labelled 2, i.e., placenta, are as follows :
1. Placenta aids in all vital metabolic functions of the foetus. It is the means of supplying nutrients to the foetus from the mother. It also helps in exchange of respiratory gases and excretion of nitrogenous wastes from the body of foetus.
 2. Placenta also acts as an important endocrine gland that secretes a number of hormones.
 3. Placenta acts as a barrier preventing the entry of pathogens and toxins in the body of foetus.
 4. Placenta is permeable to antibodies from mother which enter the foetal blood and provide protection against diseases.
 5. Placenta stores fat and glycogen which can be broken down and absorbed by the foetal part of placenta.

Any two of the above functions can be considered

(iii) The part numbered 3 is the amniotic fluid filled amniotic cavity. The embryo is inside the amniotic cavity and is surrounded by amniotic fluid. Amniotic fluid acts as shock absorber and protects the embryo from any injury and also prevents its desiccation.

(iv) Gestation, also referred as pregnancy, is the time period from conception to the birth of a baby. The normal gestation period for the developing human embryo is approximately 9 months + 10 days, i.e., 280 days.

(v) A male embryo will have the sex chromosomal complement as XY, whereas a female embryo will have XX.

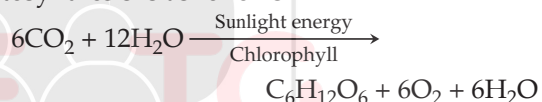
(b) (i) The apparatus is set to examine the release of oxygen gas during photosynthesis.

(ii) Photosynthesis is the process by which green plants utilize CO_2 and H_2O as raw materials in the presence of sunlight and chlorophyll, to synthesize food in the form of glucose. This process releases oxygen as a by-product.

(iii) 1. Oxygen getting filled in the empty space in test tube.

2. Hydrilla plant

(iv) A well-balanced chemical equation for photosynthesis is as follows :



(v) The rate of bubbling of the gas will increase. If a pinch of NaHCO_3 (sodium bicarbonate) is added to the water, the reaction results in the release of CO_2 . This CO_2 is then utilized for photosynthesis. The increased amount of CO_2 will increase the rate of photosynthesis, which subsequently will increase the rate of release of oxygen bubbles.

Answer 7.

(a)

| | | | | | |
|---------|--|------|------|------|-----------------------------|
| Parents | <div> <div></div> <div>TtRr</div> </div> | TTRR | TR | TR | ← Gametes |
| | | tr | TtRr | TtRr | |
| Gametes | <div> <div></div> <div>tr</div> </div> | tr | TtRr | TtRr | ← F ₁ generation |
| | | tr | TtRr | TtRr | |

(i) Genotype of F₁ generation : TtRr

Phenotype of F₁ generation : Tall plants bearing red flowers

(ii) The selfing of F₁ generation – TtRr will yield following gametes – TR, Tr, tR, tr

The possible combinations of these gametes are given in the following Punnett square :

| TtRr \ TRr | TR | Tr | tR | tr |
|------------|--------------------------------------|--|---------------------------------------|---|
| TR | TTRR Tall plants with red flowers | TTRr Tall plants with red flowers | TtRR Tall plants with red flowers | TtRr Tall plants with red flowers |
| Tr | TTRr Tall plants with red flowers | TTrr Tall plants with white flowers | TtRr Tall plants with red flowers | Ttrr Tall plants with white flowers |
| tR | TtRR Tall plants with red flowers | TtRr Tall plants with red flowers | ttRR Dwarf plants with red flowers | ttRr Dwarf plants with red flowers |
| tr | TtRr Tall plants with red flowers | Ttrr Tall plants with white flowers | ttRr Dwarf plants with red flowers | ttrr Dwarf plants with white flowers |

(iii) **Mendel's law of independent assortment :**

This law was deduced from a dihybrid cross, where simultaneous inheritance of two different characters was considered. According to this law, the alleles of two different characters assort or separate independently of one another at the time of gamete formation. The alleles are thus free to recombine and form new combinations in the subsequent generations.

(iv) The F_2 generation phenotypes would be –

1. Tall plants with red flowers
2. Tall plants with white flowers
3. Dwarf plants with red flowers
4. Dwarf plant with white flowers

Out of these, tall plants with white flowers and dwarf plants with red flowers were the recombinants.

(v) The phenotypic ratio of F_2 generation would be 9 : 3 : 3 : 1

| | | | |
|------------------------------|--------------------------------|-------------------------------|--------------------------------|
| Tall plants with red flowers | Tall plants with white flowers | Dwarf plants with red flowers | Dwarf plant with white flowers |
| 9 | 3 | 3 | 1 |

(b) (i) **Reflex action :** A reflex action is a nerve mediated spontaneous, automatic, involuntary response to a stimulus acting on a specific receptor. The route of every reflex passes through an aggregation of nervous tissue, either brain or spinal cord. Brain or spinal cord aids in transfer of sensory stimulus to motor response.

(ii) **Power of accommodation :** It refers to the ability of the eye lens to adjust its focal length to see objects at different distances clearly. The ciliary muscles contract and make the lens thicker to view nearby objects clearly, whereas they relax and make the lens thinner to focus on distant objects. The least distance of distinct vision for a normal eye is 25 cm and the maximum distance is infinity.

(iii) **Photophosphorylation :** It is the process of formation of ATP from ADP and inorganic phosphate in chloroplasts with the help of energy obtained from solar radiations.

(iv) **Hormone :** A hormone is a chemical substance produced by the cells of endocrine gland which are transported by circulatory system to other parts of the body, where they regulate one or more physiological processes.

(v) **Synapse :** A synapse is referred as an area of specialized activity between the terminal ends of axon of one neuron and the dendrites or cell body of adjacent neuron. It facilitates transmission of nerve impulse from one neuron to another. Conduction of nerve impulse across a synapse can be of two types *i.e.*, electrical and chemical.



QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

(a) Name the following :

- (i) The process of uptake of mineral ions against the concentration gradient using energy from cell.
- (ii) The form in which glucose is stored in liver.
- (iii) The vein that carries oxygenated blood.
- (iv) The cross between two parents having one pair of contrasting characters.
- (v) The structure formed by the villi of the embryo and the uterus of the mother.

(b) The statements given below are False. Rewrite the correct form of the statement by changing the word which is underlined :

- (i) Alpha cells of pancreas secrete Insulin.
- (ii) Formalin is an example of an Antiseptic.
- (iii) CNG is mainly responsible for the formation of acid rain.
- (iv) Sulphadiazine is an example of an Antiseptic.
- (v) Cretinism is caused due to deficiency of Adrenaline.

(c) Choose the correct answer from the four options given below :

- (i) A single highly coiled tube where sperms are stored, gets concentrated and mature is known as :
(A) Epididymis
(B) Vas efferentia
(C) Vas deferens
(D) Seminiferous tubule.
- (ii) Chromosomes get aligned at the centre of the cell during :

- (A) Metaphase (B) Anaphase
- (C) Prophase (D) Telophase.

(iii) BCG vaccine is effective against : **

- (A) Cholera (B) Mumps
- (C) Tuberculosis (D) Measles

(iv) Which one of the following is mainly associated with the maintenance of the posture ?

- (A) Cerebrum (B) Cerebellum
- (C) Thalamus (D) Pons

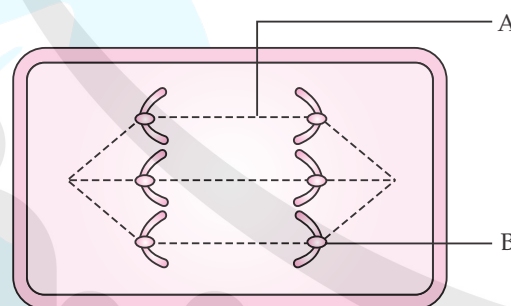
(v) An example of non-biodegradable waste is :

- (A) Vegetable peels (B) Sewage
- (C) Livestock waste (D) DDT

(d) Mention the exact location of the following structures :

- (i) Thylakoids (ii) Organ of Corti [5]
- (iii) Lenticels (iv) Bicuspid Valve
- (v) Loop of Henle

(e) The diagram given below represents a certain stage of mitosis :



- (i) Identify the stage of cell division.
- (ii) Name the parts labelled A and B.
- (iii) What is the unique feature observed in this stage ?
- (iv) How many daughter cells are formed from this type of cell division ?

(f) Given below is an example of a certain structure and its special functional activity. On a similar pattern fill in the blanks with suitable functions :

Example : Chloroplast and Photosynthesis :

- (i) Xylem and
- (ii) Ciliary Body and
- (iii) Seminiferous Tubule and
- (iv) Thyroid Gland and
- (v) Eustachian Tube and

(g) Rewrite and complete the following sentences by inserting the correct word in the space indicated :

- (i) The phenomenon of loss of water through a cut stem or injured part of plant is called
- (ii) is the scientific name of garden pea, which Mendel used for his experiments.
- (iii) A fluid that occupies the larger cavity of the eye ball behind the lens is
- (iv) Oxygen combines with haemoglobin present in RBC and forms
- (v) causes corrosion of the marble or brick surface.

** Answer is not given due to change in the present syllabus.

- (h) Match the items in Column 'A' with those which are most appropriate in Column 'B'. Rewrite the matching pairs as shown in the example : [5]

Example : Fibrinogen–Clotting of blood.

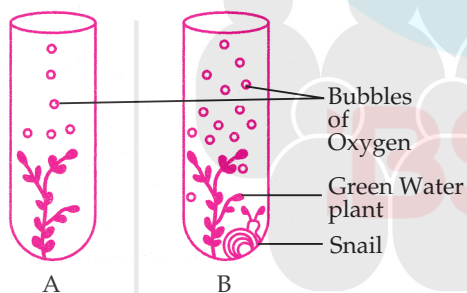
| Column A | Column B |
|-------------------|-----------------------------------|
| (1) Allele | (a) Control of automobile exhaust |
| (2) Leydig cells | (b) Tourniquet |
| (3) Utriculus | (c) Alternate forms of genes |
| (4) Snake bite** | (d) Dynamic equilibrium |
| (5) Euro IV norms | (e) Testosterone |
| | (f) Sudden change in genes |
| | (g) Static equilibrium |

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

- (a) The diagram below shows two test-tubes A and B. Test-tube A contains a green water plant. Test-tube B contains both a green water plant and a snail. Both Test-tubes are kept in sunlight. Answer the questions that follow : [5]



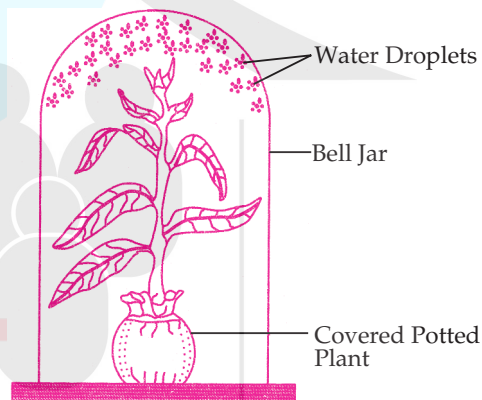
- (i) Name the physiological process that releases the bubbles of oxygen.
 (ii) Explain the physiological process as mentioned above in Q. 2 (a) (i).
 (iii) What is the purpose of keeping a snail in test-tube 'B' ?
 (iv) Why does test-tube 'B' have more bubbles of oxygen ?
 (v) Give an example of a water plant that can be used in the above experiment.
 (vi) Write the overall chemical equation for the above process.
 (b) Give the biological/technical terms for the following : [5]
 (i) A mixture of smoke and fog.
 (ii) Capacity of our body to resist diseases.**

** Answer is not given due to change in the present syllabus.

- (iii) Fixing of developing zygote on the uterine wall.
 (iv) The permanent stoppage of menstruation at about the age of 45 years in a female.
 (v) The hormone increasing reabsorption of water by kidney tubules.
 (vi) A thin membrane covering the entire front part of the eye.
 (vii) The lens of eye losing flexibility resulting in a kind of long-sightedness in middle aged people.
 (viii) The number of persons living per square kilometre at any given time.
 (ix) The sound produced when the atrio-ventricular valves close in the heart.
 (x) The process by which white blood cells engulf bacteria.

Question 3.

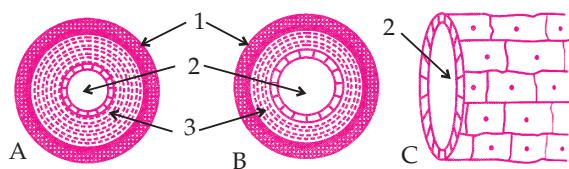
- (a) An apparatus as shown below was setup to investigate a physiological process in plants. The setup was kept in sunlight for two hours. Droplets of water were then seen inside the bell jar. Answer the questions that follow : [5]



- (i) Name the process being studied.
 (ii) Explain the process named above in Q. 3. (a) (i).
 (iii) Why was the pot covered with a plastic sheet ?
 (iv) Suggest a suitable control for this experiment.
 (v) Mention two ways in which this process is beneficial to plants.
 (vi) List three adaptations in plants to reduce the above mentioned process.
 (b) Briefly answer the following questions : [5]
 (i) State two reasons for the increase of population in India.
 (ii) What is the significance of amniotic fluid ?
 (iii) What is the function of ear ossicles ?
 (iv) Mention any two activities of the WHO.**
 (v) State Mendel's law of Dominance.

Question 4.

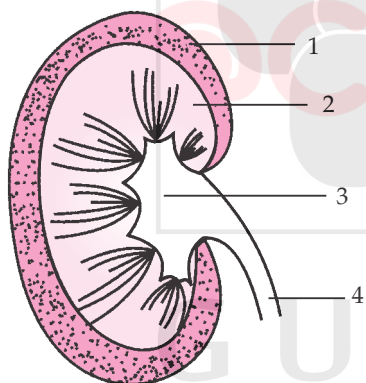
- (a) The diagram given below are cross-sections of blood vessels : [5]



- Identify the blood vessels A, B and C.
 - Name the parts labelled 1 to 3.
 - Name the type of blood that flows through A.
 - Mention one structural difference between A and B.
 - In which of the above vessels does exchange of gases actually take place ?
- (b) Differentiate between the following pairs on the basis of what is mentioned within brackets : [5]
- Diffusion and Osmosis (Definition)
 - RBC and WBC (Shape)
 - Tubectomy and Vasectomy (Part cut and tied)
 - Vasopressin and Insulin (Deficiency disorder)
 - Rods and Cones of Retina (Type of Pigment).

Question 5.

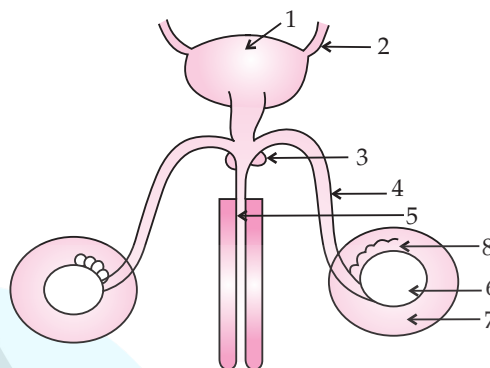
- (a) The diagram given below shows a section of a human kidney. Study the diagram carefully and answer the questions that follow : [5]



- Label the parts numbered 1 to 4.
 - Why does part '2' have a striped appearance ?
 - What is the fluid that passes down part '4' ? Name the main nitrogenous waste present in it.
 - Mention the structural and functional units of kidneys.
 - Name the two major steps in the formation of the fluid mentioned in Q. 5 (a) (iii).
- (b) Draw neat and labelled diagrams of the following : [5]
- Malpighian Capsule.
 - A Myelinated Neuron.

Question 6.

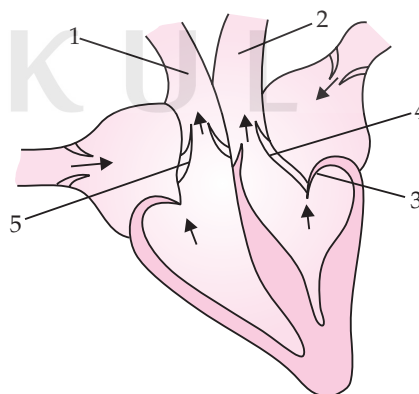
- (a) The diagram given below shows the male urinogenital system of a human being. Study the diagram and answer the questions that follow : [5]



- Label the parts numbered 1 to 8.
 - Name the corresponding structure of part (4) in female reproductive system.
 - What is the role of part 7 ?
- (b) In a homozygous plant, round seeds (R) are dominant over wrinkled seeds (r) : [5]
- Draw a Punnett square to show the gametes and offspring when both the plants have heterozygous round seeds (Rr).
 - Mention the Phenotype and Genotype ratios of the offsprings in F_2 generation.
 - Name the sex chromosomes in human males and females.
 - Briefly explain the term 'Mutation'.
 - What is the number of chromosomes in the gametes of human beings ?

Question 7.

- (a) The diagram below represents the human heart in one phase of its functions. Study the diagram carefully and answer the questions that follows : [5]



- Name the phase.
- Which part of the heart is contracting in this phase ? Give a reason to support your answer.
- Name the parts labelled 1 to 4.

- (iv) What type of blood flows through '2' ?
 (v) State the function of the part numbered '5'.
 (vi) Name the membrane that covers the heart.

- (b) Explain the following terms : [5]
 (i) Greenhouse effect (ii) Turgor pressure
 (iii) Selective reabsorption (iv) Natality
 (v) Pulse

ANSWERS

SECTION-I

Answer 1.

- (a) (i) Active Transport (ii) Glycogen
 (iii) Pulmonary veins (iv) Monohybrid cross
 (v) Placenta
 (b) (i) Glucagon (iii) SO₂
 (v) Thyroxine
 (c) (i) (A) Epididymis (ii) (A) Metaphse
 (iv) (B) Cerebellum (v) (D) DDT
 (d) (i) Present in each granum of the chloroplast.
 (ii) Present in the cochlea of internal ear.
 (iii) Present in the epidermis of the stems of woody plants.
 (iv) Present in between the left atrium and left ventricle.
 (v) Present in the medulla region of the kidney and connects PCT with DCT.
 (e) (i) Anaphase
 (ii) A—Spindle fibre B—Centromere
 (iii) Two sister chromatids of each chromosome separate and are drawn apart towards opposite poles.
 (iv) Two daughter cells are formed from this type of cell division.
 (f) (i) Xylem and Water transport.
 (ii) Ciliary body and accommodation of eye lens.
 (iii) Seminiferous tubule and Spermatogenesis
 (iv) Thyroid gland and Secretion of thyroxine
 (v) Eustachian tube and Equalising air pressure.
 (g) (i) Bleeding (ii) *Pisum sativum*
 (iii) Vitreous humour (iv) Oxy-haemoglobin
 (v) Acid rain

(h)

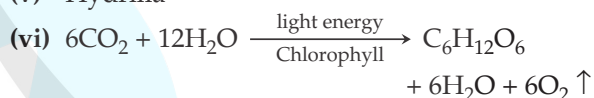
| Column A | Column B |
|-----------------|-----------------------------------|
| 1 Allele | (c) Alternate forms of genes |
| 2 Leydig cells | (e) Testosterone |
| 3 Utriculus | (g) Static equilibrium |
| 5 Euro IV norms | (a) Control of automobile exhaust |

SECTION-II

Answer 2.

- (a) (i) Photosynthesis

- (ii) Refer to ICSE Paper, 2019, Answers 3 (a) (iii).
 (iii) To increase the rate of photosynthesis by releasing CO₂. This also suggests that both respiration and photosynthesis are needed to maintain O₂ and CO₂ concentration in the atmosphere.
 (iv) When snail respire, concentration of CO₂ increases which enhances the rate of photosynthesis.
 (v) Hydrilla



- (b) (i) Smog (iii) Implantation
 (iv) Menopause (v) Antidiuretic Hormone (ADH)
 (vi) Conjunctiva (vii) Presbyopia
 (viii) Population density (ix) LUBB
 (x) Phagocytosis

Answer 3.

- (a) (i) Transpiration.
 (ii) Transpiration is the evaporative loss of water from the aerial parts (leaves and stems) of the plant.
 (iii) To prevent evaporation of water from the soil.
 (iv) An empty polythene bag with its mouth tied and kept in sunlight will show no droplets of water inside.

(v) Benefits of transpiration :

- Excess water is removed by plants which creates a suction force in the stem. This helps to pull up absorbed water and minerals from roots.
- Because of the release of water from plant, transpiration contributes towards lowering the temperature.

(vi) Refer to ICSE Paper, 2019, Answer 5 (a) (iv).

- (b) (i) Reasons for the increase of population in India :

- Low marriage age.
- Illiteracy.
- Most Indian families desire to have at least one male child. Hence, a couple produces several children till a son is born.

(ii) Amniotic fluid acts as shock absorber and protects the embryo from mechanical jerks. It also maintains even pressure all around the embryo.

(iii) Ear ossicles transmit vibrations to the oval window which sets the cochlear fluid into vibration.

(v) Refer to ICSE Paper, 2019, Answer 6 (a) (iv).

Answer 4.

(a) (i) A– Artery B– Vein
C– Capillary

(ii) 1. Tunica externa/connective tissue layer
2. Lumen
3. Tunica media/Muscular layer

(iii) Oxygenated blood flows through A.

(iv) Arteries are thick-walled and do not have valves. Veins are thin-walled and have valves.

(v) The exchange of gases takes place in C (capillaries).

(b) (i)

| Diffusion | Osmosis |
|---|---|
| It is the movement of the molecules of a substance from higher concentration towards the lower concentration when the two substances are in direct contact. | It is the movement of solvent molecules through a semipermeable membrane from a less concentrated solution to a more concentrated solution. |

(ii)

| RBC | WBC |
|--------------------------------|----------------------------------|
| Biconcave disc, non-nucleated. | Irregular (amoeboid), nucleated. |

(iii)

| Vasectomy | Tubectomy |
|---|---|
| Sperm duct is cut and tied at both cut ends in male to block the path sperms from the testes. | Cutting of the fallopian tubes and tied the cut ends to prevent the passage of ova down the fallopian tube. |

(iv)

| Vasopressin | Insulin |
|--------------------|-------------------|
| Diabetes insipidus | Diabetes mellitus |

(v)

| Rods | Cones |
|-----------|----------|
| Rhodopsin | Iodopsin |

Answer 5.

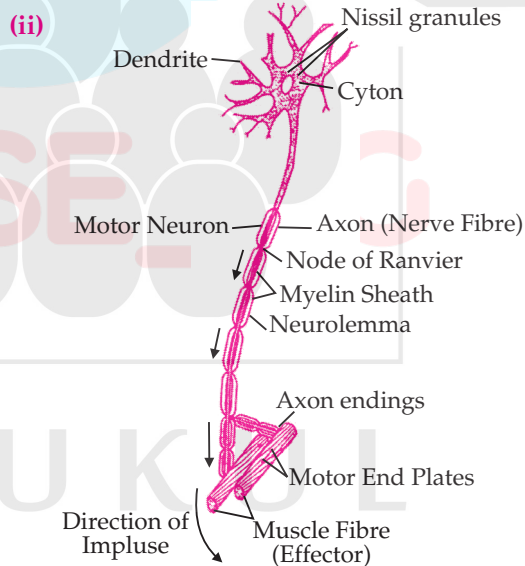
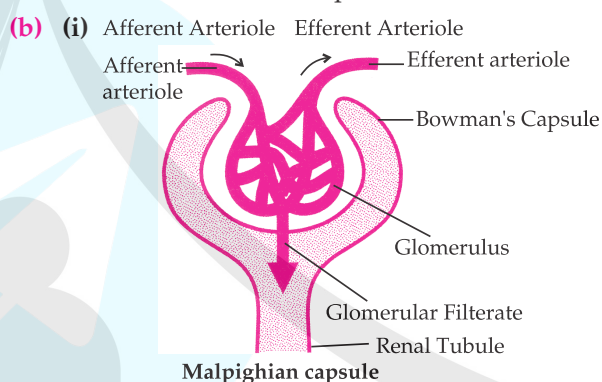
(a) (i) 1. Cortex 2. Medulla
3. Pelvis 4. Ureter

(ii) Medulla has a striped appearance because the straight tubules and blood vessels are associated with the renal pyramids, present in renal medulla.

(iii) Fluid that passes down the ureter is urine. Its main nitrogenous waste is urea.

(iv) Nephron

(v) 1. Ultrafiltration
2. Tubular reabsorption



Myelinated Neuron

Answer 6.

(a) (i) 1. Urinary Bladder 2. Ureter
3. Prostate glands 4. Vas deferens
5. Urethra 6. Testis
7. Scrotum 8. Epididymis

(ii) Fallopian tube or oviduct.

(iii) The high temperature of body does not permit maturation of sperms. Thus the scrotum

suspends the testis outside the body at a lower temperature suitable for spermatogenesis.

- (b) (i) Homozygous round seed —RR
Homozygous wrinkled seed —rr

$$RR \times rr$$

Gametes : — Rr

F₁ generation — All Round seeds

| O → | R | r |
|---------------------------|---------------|------------------|
| O + | RR (Round) | Rr (Round) |
| r | Rr (Round) | rr (Wrinkled) |
| F ₂ generation | | |

- (ii) F₂ generation :
Phenotypic ratio – 3 : 1
Genotypic ratio – 1 : 2 : 1
- (iii) Sex chromosomes in human males and females are known as allosomes.
Males : XY Females : XX
- (iv) A chemical change in the gene which may produce new traits that can be inherited, is known as mutation.
- (v) Number of chromosomes in the gametes of human beings is 23.

Answer 7.

- (a) (i) Ventricular systole
(ii) Both ventricles are contracting in this phase, because both bicuspid and tricuspid valves are

closed in order to prevent the backflow of blood into atria and the semilunar valves are open.

- (iii) 1. Pulmonary artery
2. Aorta
3. Aortic Bicuspid valve
4. Semilunar valve
- (iv) '2' carries oxygenated blood.

(v) Part 5 is pulmonary semilunar valve through which blood passes into pulmonary artery and prevents the backflow of blood into the right ventricle.

(vi) Pericardium.

- (b) (i) **Greenhouse effect** : Certain gases especially CO₂, methane (CH₄) and nitrogen oxides accumulating in the atmosphere prevent the escape of heat, thus warming the air. This is known as greenhouse effect.
- (ii) **Turgor pressure** : It is the pressure of the cell contents on the cell wall. It results due to the movement of water into the cell through osmosis.
- (iii) **Selective reabsorption** : The reabsorption of water and some other usable substances from the glomerular filtrate in the renal tubule. This reabsorption occurs only to the extent that the normal concentration of blood is undisturbed.
- (iv) **Natality** : It is the number of children born per 1000 people of population in a year.
- (v) **Pulse** : The throb in the arteries caused due to the contraction of left ventricle of the heart.

••

GURUKUL

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Name the following : [5]
- The part of the brain associated with memory.
 - The ear ossicle which is attached to the tympanum.
 - The type of gene, which in the presence of a contrasting allele is not expressed.
 - The hormone secreted by islets of langerhans.
 - The process of conversion of ADP into ATP during photosynthesis.

- (b) State the main function of the following : [5]
- Cerebrospinal fluid
 - Eustachian tube
 - Suspensory ligament of the eye
 - Sperm duct
 - Lenticels

- (c) Copy and complete the following by filling in the blanks 1 to 5 with appropriate words : [5]

The human female gonads are ovaries. A maturing egg in the ovary is present in a sac of cells called.....

(1). As the egg grows larger, the follicle enlarges and gets filled with a fluid and is now called the.....

(2) follicle. The process of releasing the egg from the ovary is called.....(3). The ovum is picked up by the oviduct funnel and fertilisation takes place in the.....(4). In about a week the blastocyst gets fixed in the endometrium of the uterus and this process is called.....(5).

- (d) Given below are six sets with four terms each. In each set one term is odd and cannot be grouped in the same category to which the other three belong. Identify the odd one in each set and name the category to which the remaining three belong. The first one has been done as an example. [5]

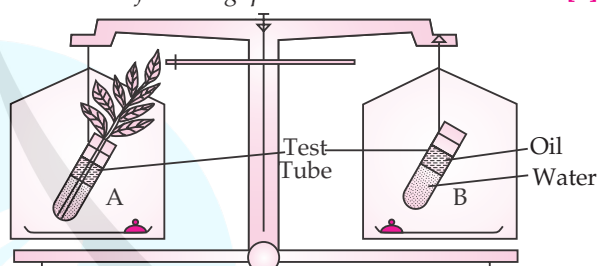
Example : Calyx, Corolla, Stamens, Midrib

Odd term : Midrib

Category : Parts of a flower.

- Haemoglobin, Glucagon, Iodopsin, Rhodopsin.
- Urethra, Uterus, Urinary bladder, Ureter.
- Transpiration, Photosynthesis, Phagocytosis, Guttation.
- Cyton, Photon, Axon, Dendron.
- Oxytocin, Insulin, Prolactin, Progesterone.

- (e) The figure given below represents an experimental set up with a weighing machine to demonstrate a particular process in plants. The experimental set up was placed in bright sunlight. Study the diagram and answer the following questions : [5]



- Name the process intended for study.
- Define the above mentioned process.
- When the weight of the test tube (A and B) is taken before and after the experiment, what is observed ? Give reasons to justify your observation in A and B.
- What is the purpose of keeping the test tube B in the experimental set up ?

- (f) Match the items given in Column A with the most appropriate ones in Column B and rewrite the correct matching pairs from Column A and Column B : [5]

| S. No. | Column A | Column B |
|--------|----------------------|--------------------|
| 1. | Pituitary gland | (a) Testosterone |
| 2. | Sulphur dioxide | (b) Calcium |
| 3. | Seminiferous tubules | (c) Growth hormone |
| 4. | Clotting of blood | (d) Acid rain |
| 5. | Guttation | (e) Sperms |
| | | (f) Global warming |
| | | (g) Magnesium |
| | | (h) Hydathodes |

- (g) Choose the correct answer from the options given below : [5]

- Cretinism and Myxoedema are due to :
 (A) Hypersecretion of thyroxine
 (B) Hypersecretion of growth hormone
 (C) Hyposecretion of thyroxine.
 (D) Hyposecretion of growth hormone.
- Which of the following is not a natural reflex action ?

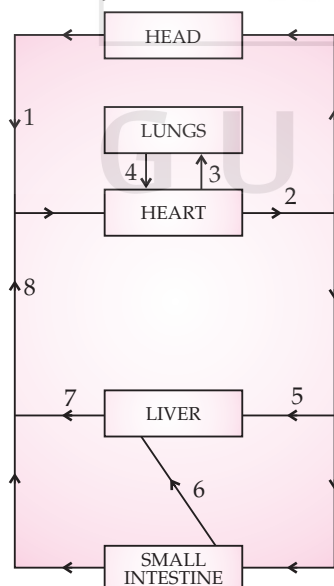
- (A) Knee-jerk.
 (B) Blinking of eyes due to strong light.
 (C) Salivation at the sight of food.
 (D) Sneezing when any irritant enters the nose.
- (iii) After mitotic cell division, a female human cell will have :
 (A) 44 + xx chromosome.
 (B) 44 + xy chromosome.
 (C) 22 + x chromosome.
 (D) 22 + y chromosome.
- (iv) The antibiotic penicillin is obtained from :
 (A) Protozoan (B) Bacteria
 (C) Virus (D) Fungus
- (v) The site of maturation of human sperms is the :
 (A) Seminiferous tubule
 (B) Interstitial cells
 (C) Epididymis
 (D) Prostate gland
- (h) State the exact location of the following :
 (i) Tricuspid valve (ii) Amnion
 (iii) Yellow spot (iv) Seminal vesicle
 (v) Adrenal gland

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

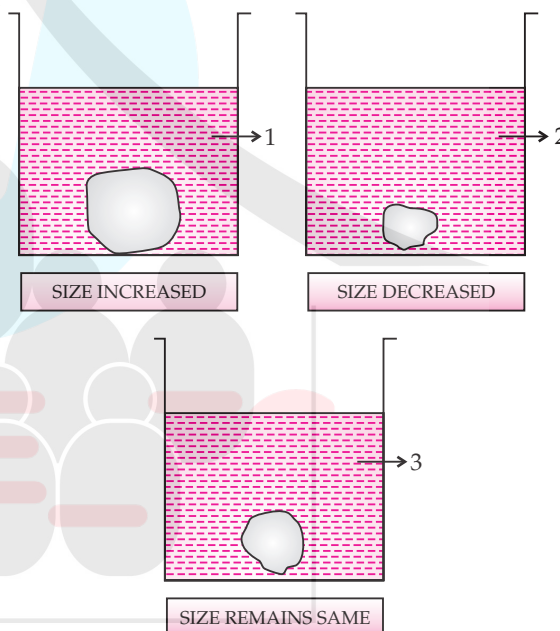
- (a) Differentiate between the following pairs on the basis of what is mentioned within brackets : [5]
 (i) Spinal nerves and Cranial nerves (Number of nerves).
 (ii) Near vision and Distant Vision (shape of the eye lens)
 (iii) Corpus callosum and Corpus luteum. (function).
 (iv) Turgor pressure and wall pressure. (Explain).
 (v) Disinfectant and Antiseptic (Definition).^{**}
- (b) The diagram below represents the simplified pathway of the circulation of blood. Study the same and answer the questions that follow :



- (i) Name the blood vessels labelled 1 and 2.
 (ii) State the function of blood vessels labelled 5 and 8.
 (iii) What is the importance of the blood vessel labelled 6 ?
 (iv) Which blood vessel will contain a high amount of glucose and amino acids after a meal ?
 (v) Draw a diagram of the different blood cells as seen in a smear of human blood.

Question 3.

- (a) A candidate in order to study the process of osmosis has taken 3 potato cubes and put them in 3 different beakers containing 3 different solutions. After 24 hours, in the first beaker the potato cube increased in size, in the second beaker the potato cube decreased in size and in the third beaker there was no change in the size of the potato cube. The following diagram shows the result of the same experiment : [5]



- (i) Give the technical terms of the solutions used in beakers 1, 2 and 3.
 (ii) In beaker 3 the size of the potato cube remains the same. Explain the reason in brief.
 (iii) Write the specific feature of the cell sap of root hairs which helps in absorption of water.
 (iv) What is osmosis ?
 (v) How does a cell wall and a cell membrane differ in their permeability ?
- (b) A potted plant was taken in order to prove a factor necessary for photosynthesis. The potted plant was kept in the dark for 24 hours. One of the leaves was covered with black paper in the centre. The potted plant was then placed in sunlight for a few hours. [5]
 (i) What aspect of photosynthesis was being tested ?

^{**} Answer is not given due to change in the present syllabus.

(ii) Why was the plant placed in the dark before beginning the experiment ?

(iii) During the starch test why was the leaf :

(1) boiled in water

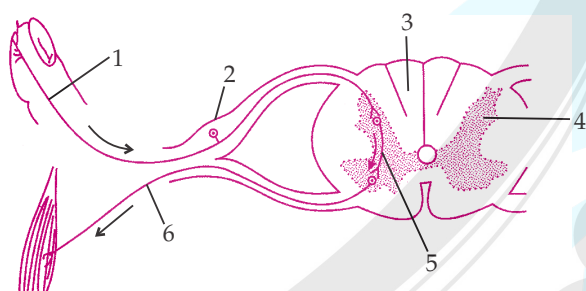
(2) boiled in methylated spirit.

(iv) Write a balanced chemical equation to represent the process of photosynthesis.

(v) Draw a neat diagram of a chloroplast and label its parts.

Question 4.

(a) The diagram given below is a representation of a certain phenomenon pertaining to the nervous system. Study the diagram and answer the following questions : [5]



(i) Name the phenomenon that is being depicted.

(ii) Give the technical term for the point of contact between the two nerve cells.

(iii) Name the parts 1, 2, 3 and 4.

(vi) Write the functions of parts 5 and 6.

(v) How does the arrangement of neurons in the spinal cord differ from that of the brain ?

(b) Give scientific reasons for the following statements : [5]

(i) Use of CFC is banned in many countries.

(ii) We cannot distinguish colours in moonlight.

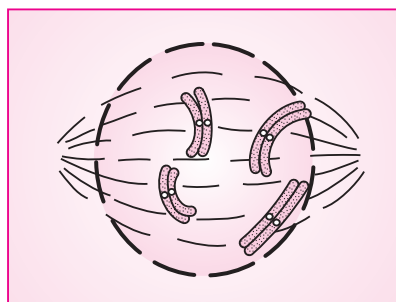
(iii) Balsam plants wilt during mid-day even if the soil is well watered.

(iv) Carbon monoxide is highly dangerous when inhaled.

(v) A person after consuming alcohol walks clumsily.

Question 5.

(a) Given below is a diagram representing a stage during mitotic cell division. Study it carefully and answer the questions that follow : [5]



(i) Is it a plant cell or an animal cell ? Give a reason to support your answer.

(ii) Identify the stage shown.

(iii) Name the stage that follows the one shown here. How is that stage identified ?

(iv) How will you differentiate between mitosis and meiosis on the basis of the chromosome number in the daughter cells ?

(v) Draw a duplicated chromosome and label its parts.

(b) (i) Name the disease for which following types of vaccines are given : ** [5]

(1) Salk's Vaccine.

(2) B.C.G.

(ii) Give one example of each of the following :

(1) A water pollutant.

(2) An aquatic plant used in the lab to demonstrate O_2 liberation during photosynthesis.

(3) An antibiotic.**

(4) A nitrogenous base in DNA.

(iii) Expand the following biological abbreviations :

(1) ATP

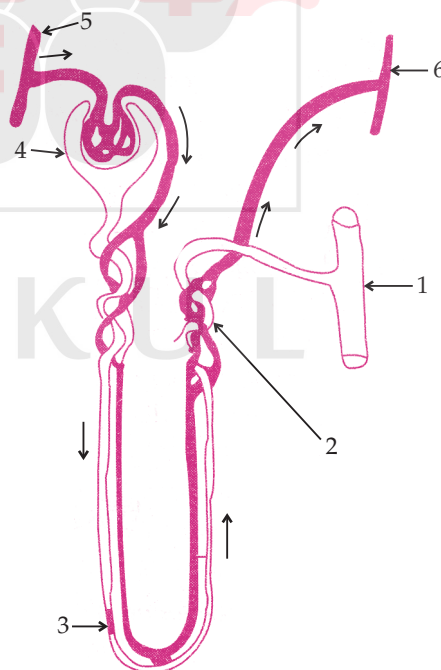
(2) TSH

(3) DPT**

(4) DNA

Question 6.

(a) The given diagram represents a nephron and its blood supply. Study the diagram and answer the following questions : [5]



(i) Label parts 1, 2, 3 and 4.

(ii) State the reason for the high hydrostatic pressure in the glomerulus.

** Answer is not given due to change in the present syllabus.

(iii) Name the blood vessel which contains the least amount of urea in this diagram.

(iv) Name the two main stages of urine formation.

(v) Name the part of the nephron which lies in the renal medulla.

(b) Briefly explain the following terms : [5]

(i) monohybrid cross. (ii) Biomedical waste.

(iii) Innate immunity.** (iv) Diapedesis.

(v) Hormones.

Question 7.

(a) (i) State any two harmful effects of noise pollution on human health. [5]

(ii) Categorize the following activities as per the functions of the Red Cross Society and the WHO : **

(1) To suggest quarantine measures to prevent spread of disease.

(2) Humanitarian services to victims of war.

(3) To educate people in accident prevention.

(4) To promote projects for research on disease.

(iii) Write any two major reasons for the population explosion in India.

(iv) State Mendel's law of segregation.

(b) Give technical terms for the following : [5]

(i) A method of contraception in which the sperm duct is cut and ligated.

(ii) Statistical study of human population.

(iii) The protective covering of the heart.

(iv) A sudden heritable change in the gene.

(v) Repeated units of DNA molecule.

(vi) The fluid portion of blood.

(vii) The nerve that transmits impulses from the ear to the brain.

(viii) Group of hormones which influence other endocrine glands to produce hormones.

(ix) Thin walled sac of skin that covers the testes.

(x) The permanent stoppage of the menstrual cycle in a woman aged 50 years.

ANSWERS

SECTION-I

Answer 1.

- (a) (i) Cerebrum (ii) Malleus
(iii) Recessive (iv) Insulin/Glucagon
(v) Photophosphorylation

- (b) (i) It acts as a cushion to protect the brain from jerks and shocks.
(ii) It equalizes air pressure on both sides of the ear drum helping it to vibrate freely.
(iii) It helps to suspend the lens in the eye ball cavity.
(iv) It carries sperms from the epididymis to the urethra.
(v) They allow diffusion of gases for respiration and photosynthesis.

- (c) 1. Follicle. 2. Graafian
3. Ovulation 4. Oviduct
5. Implantation

- (d) (i) Odd—Glucagon
Category—Pigments
(ii) Odd—Uterus
Category—Excretory organs
(iii) Odd—Phagocytosis
Category—Plant processes
(iv) Odd—Photon Category—Parts of neuron
(v) Odd—Insulin
Category—Female hormones.

- (e) (i) Transpiration
(ii) It is the loss of water in the form of water vapour from the aerial parts of the plant.

- (iii) Weight of test tube A will decrease after the experiment because water will be lost from it through the leaves by transpiration. Weight of test tube B will remain same after the experiment because water will not be lost by transpiration as there is no plant in it and nor by evaporation as oil is spread over it, which will not allow evaporation.
(iv) It is a control experiment where the purpose of using test tube B is to compare the level of water in both test tubes. Test tube B is used here as a control.

(f)

| S. No. | Column A | Column B |
|--------|----------------------|--------------------|
| 1. | Pituitary gland | (c) Growth hormone |
| 2. | Sulphur dioxide | (d) Acid rain |
| 3. | Seminiferous tubules | (e) Sperms |
| 4. | Clotting of blood | (b) Calcium |
| 5. | Guttation | (h) Hydathodes |

- (g) (i) (C) Hyposecretion of thyroxine.
(ii) (C) Salivation at the sight of food.
(iii) (A) 44 + xx chromosome
(v) (C) Epididymis
(h) (i) **Tricuspid valve**—Between right auricle and right ventricle.
(ii) **Amnion**—Around the embryo in uterus and inner to chorion.

** Answer is not given due to change in the present syllabus.

(iii) **Yellow spot**—On the horizontal median axis of eye ball in retina.

(iv) **Seminal vesicle**—Lobulated glands located between the posterior surface of the urinary bladder and the rectum.

(v) **Adrenal gland**—On top of each kidney as a cap.

SECTION-II

Answer 2.

(a) (i)

| Spinal nerve | Cranial nerve |
|--------------|---------------|
| 31 pairs | 12 pairs |

(ii)

| Near vision | Distant vision |
|-------------------------|-----------------|
| More convex or rounded. | More flattened. |

(iii)

| Corpus callosum | Corpus luteum |
|---|---|
| Transfer information from one cerebral hemisphere to the other. | It secretes progesterone and oestrogen. |

(iv)

| Turgor pressure | Wall pressure |
|---|--|
| It is the outward pressure exerted by the contents of a turgid cell on its cell wall. | It is the inward pressure exerted by the cell wall on its contents (protoplasm). |

(b) (i) 1. Anterior vena cava
2. Aorta

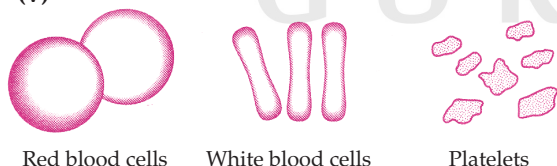
(ii) Blood vessel 5 carries oxygenated blood to the liver.

Blood vessels 8 brings deoxygenated blood from lower parts of the body to heart.

(iii) It brings all the digested food and deoxygenated blood from parts of alimentary canal to liver.

(iv) Blood vessel number 6. *i.e.*, hepatic portal vein.

(v)



Red blood cells

White blood cells

Platelets

Answer 3.

(a) (i) **Beaker 1:** Hypotonic solution
Beaker 2 : Hypertonic solution
Beaker 3 : Isotonic solution

(ii) In beaker 3 the size of potato cube remains the same because of isotonic solution which has same concentration of solutes as that of potato cells. So, water is neither lost nor gained by the potato cells.

(iii) Cell sap of root hairs is much more concentrated than the soil solution and this causes entry of water into the root cells.

(iv) Osmosis is the movement of water molecules from a more dilute solution having high water potential to a less dilute solution having lower water potential, through a semi-permeable membrane.

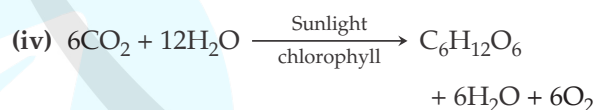
(v) Cell wall is freely permeable while cell membrane is selectively permeable.

(b) (i) That light is necessary for photosynthesis.

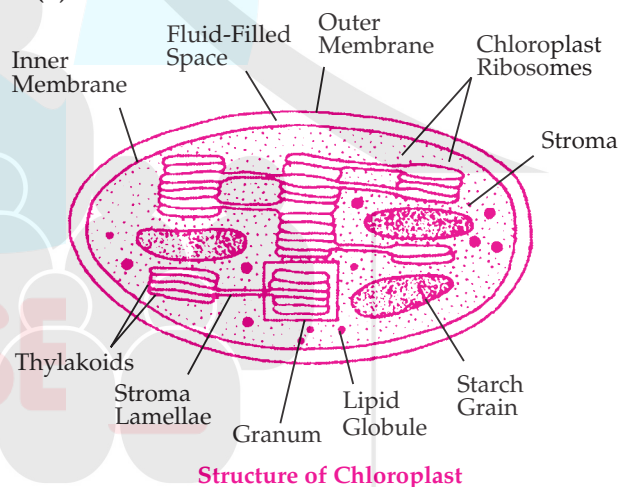
(ii) To remove all pre-existing starch from the leaves of the plant.

(iii) (1) The leaf was boiled in water to destroy enzymes so that further chemical changes do not take place in the leaf.

(2) To dissolve the chlorophyll.



(v)



Answer 4.

(a) (i) Pathway of reflex action or reflex arc

(ii) Synapse

(iii) 1. Sensory neuron

2. Dorsal root ganglions

3. White matter

4. Gray matter

(iv) Function of part 5—It receives messages from sensory neuron and passes it to the motor neuron. Function of part 6—It passes impulses from the main nervous system to the effector organ.

(v) In the brain, the cell bodies of neurons lie in the cortex *i.e.*, the outer region (gray matter) and axons lie on the inner region (white matter). In the spinal cord, the cell bodies lie in the medullary region (inner gray matter) and axons lie on the outer side *i.e.*, cortex (outer white matter).

(b) (i) Chlorine from CFC breaks ozone molecules into oxygen and nascent oxygen. CFC reacts with ozone in the atmosphere and decreases its concentration. This has resulted in a thinner layer of ozone in the air specially over the polar region. Harmful ultraviolet rays would be able to enter the earth's atmosphere through this thin ozone layer and cause damage to life and diseases like skin cancer in humans. Therefore, its use is banned in many countries.

(ii) In dim light, colours cannot be distinguished because the rod cells are working in dim light but they do not detect colours. Cone cells detect colours but they do not work in dim light like that of moon.

(iii) Transpiration rate in such plants is very high during mid-day and exceeds the water absorption rate of the roots. So, more water is lost than absorbed. This water deficiency in cells causes them to lose turgidity and the plants get wilted.

(iv) Carbon monoxide combines with haemoglobin of RBCs and forms a stable and irreversible complex compound known as carboxyhaemoglobin. This decreases the oxygen carrying capacity of blood, sometimes resulting in death of person.

(v) Alcohol affects the cerebellum which is the center of body balance and co-ordination. Due to the alcohol affect, the cerebellum is unable to co-ordinate muscular movements properly.

Answer 5.

(a) (i) It is plant cell, because centrosome is absent and spindle apparatus is not connected to it.

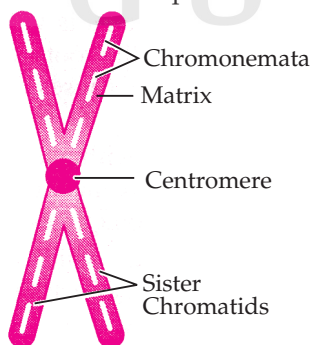
(ii) Prophase.

(iii) Metaphase. In this stage, the chromosome lies in one plane at equator and gets attached to a spindle fibre by its centromere.

(iv) Mitosis—Chromosome number of the daughter cells is the same as parent cell.

Meiosis—Chromosome number of the daughter cells is half as that of the parent cell.

(v)



Structure of Chromosome

(b) (i) (1) Pesticides/Sewage

(2) Hydrilla

(4) Adenine

(iii) (1) Adenosine Triphosphate

(2) Thyroid Stimulating Hormone

(4) Deoxyribo Nucleic Acid

Answer 6.

(a) (i) 1– Collecting duct

2– Distal convoluted tubule

3– Descending limb of Loop of Henle

4– Bowman's capsule

(ii) The afferent arteriole entering the Bowman's capsule is wider than the efferent arteriole which leaves it. So more blood is entering and less blood is moving out of the glomerulus which creates high hydrostatic pressure in the glomerulus.

(iii) Renal vein.

(iv) Ultrafiltration and Reabsorption.

(v) Loop of Henle.

(b) (i) **Monohybrid cross** is a cross between two pure breeding different varieties of organisms taking the alternative traits of a single character e.g., cross between pure tall and pure dwarf variety.

(ii) **Biomedical waste** is the waste that is generated in the hospitals, nursing homes etc. like used bottles, syringes, plastic, bandages etc.

(iv) **Diapedesis** is the movement of the blood cells, especially white blood cells, through intact capillary walls into surrounding body tissue.

(v) **Hormones** are chemical messengers produced by endocrine glands which move through blood to reach their target organs.

Answer 7.

(a) (i) 1. It causes hypertension.

2. It causes hearing impairment.

(iii) 1. Desire for a male child.

2. Economic reasons as children are considered to be helping hands to increase the family income.

(iv) Refer to ICSE Paper, 2018 Answer 7 (b) (iv).

(b) (i) Vasectomy (ii) Demography

(iii) Pericardium (iv) Mutation

(v) Nucleotides (vi) Plasma

(vii) Auditory nerve (viii) Tropic hormones

(ix) Scrotum (x) Menopause

QUESTIONS

SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

(a) Name the following :

- (i) The cell body of a nerve cell.
- (ii) The waxy layer on the epidermis of the leaf meant to reduce transpiration.
- (iii) A non-biodegradable pesticide.
- (iv) The physical expression of genes in an individual.
- (v) Knot-like mass of blood capillaries inside the Bowman's capsule.

(b) State the exact location of the following :

- (i) Chloroplast
- (ii) Incus
- (iii) Corpus callosum
- (iv) Guard cells
- (v) Pulmonary semilunar valve.

(c) Given below are six sets with four terms each. In each set a term is an odd one and cannot be grouped in the same category to which the other three belong. Identify the odd one in each set and name the category to which the remaining three belong. The first one has been done as an example :

Example : Fructose, Sucrose, Glucose, Calcium.

Odd term : Calcium

Category : Carbohydrates.

(i) Carbonic acid, acetic acid, benzoic acid, boric acid.**

(ii) Saliva, bile, sweat, tears.

(iii) Cretinism, myxedema, simple goitre, acromegaly.

(iv) Sneezing, coughing, blinking, typing.

(v) Semicircular canals, cochlea, tympanum, utriculus.

(d) Match the items in Column A with that which is most appropriate in Column B. Rewrite the matching pair.

| Column A | Column B |
|------------------------|--------------------|
| (1) Testis | (a) Kidney |
| (2) Poliomyelitis** | (b) Water vapour |
| (3) Transpiration | (c) Prostate gland |
| (4) Clotting of blood | (d) Iron |
| (5) Uriniferous tubule | (e) Uterus |
| | (f) Gonad |
| | (g) Salk's vaccine |

** Answer is not given due to change in the present syllabus.

| | |
|--|-------------------|
| | (h) Water droplet |
| | (i) Calcium |
| | (j) TAB vaccine |

(e) Choose the correct answer from the four options given below :

(i) The cell component visible only during cell division :

- (A) Mitochondria
- (B) Chloroplast
- (C) Chromosome
- (D) Chromatin

(ii) Pulse wave is mainly caused by the :

- (A) Systole of atria
- (B) Diastole of atria
- (C) Systole of the left ventricle
- (D) Systole of the right ventricle

(iii) The recessive gene is one that expresses itself in :

- (A) Heterozygous condition
- (B) Homozygous condition
- (C) F₂ generation
- (D) Y-linked inheritance.

(iv) A gland which secretes both hormone and enzyme is the :

- (A) Pituitary
- (B) Pancreas
- (C) Thyroid
- (D) Adrenal

(v) The ventral root ganglion of the spinal cord contains cell bodies of the :

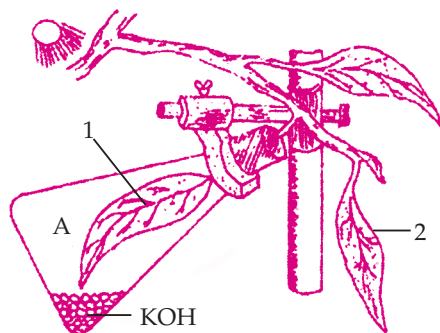
- (A) Motor neuron
- (B) Sensory neuron
- (C) Intermediate neuron
- (D) Association neuron.

(f) Given below is an example of certain structures and their special functional activities.

For example : Eye and vision, On a similar pattern complete the following :

- (i) Neutrophils :
- (ii) Ureter :
- (iii) Neurotransmitters :
- (iv) Iris of the eye :
- (v) Placenta :

(g) The figure given below represents an experiment to demonstrate a particular aspect of photosynthesis. The alphabet 'A' represents a certain condition inside the flask.



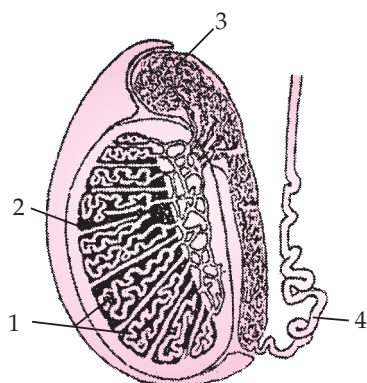
- (i) What is the aim of the experiment ?
 (ii) Identify the special condition inside the flask.
 (iii) Name an alternative chemical that can be used instead of KOH.
 (iv) In what manner do the leaves 1 and 2 differ at the end of the starch test ?
- (h) Given below are five groups of terms. In each group arrange and rewrite the terms in the correct order so as to be in a logical sequence. [5]
 For example :
 Question : Implantation, Parturition, Ovulation, Gestation, Fertilization.
 Answer : Ovulation, Fertilization, Implantation, Gestation, Parturition.
- (i) Spongy cells, Upper epidermis, Stoma, Palisade tissue, Substomatal space.
 (ii) Spinal cord, Motor neuron, Receptor, Effector, Sensory neuron.
 (iii) Endodermis, Cortex, Soil water, Xylem, Root hair.
 (iv) Metaphase, Telophase, Prophase, Anaphase, Cytokinesis.
 (v) Intestine, Liver, Intestinal artery, Hepatic Vein, Hepatic Portal Vein.

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

- (a) Given below is a diagram of the lateral section of a testis of a man. Study the same and answer the questions that follow : [5]



- (i) Label the parts numbered 1 to 4 of the diagram.
 (ii) State the functions of the parts labelled 1 and 3.
 (iii) What is the significance of the testes being located in the scrotal sac outside the abdomen ?
 (iv) What is the role played by the inguinal canal ?
 (v) What is semen ?

- (b) Give the biological/ technical terms for the following : [5]

- (i) Chemicals found in the blood which act against antigens.**
 (ii) A constituent that causes pollution.
 (iii) The onset of menstruation in a young girl.
 (iv) Structure which connects the placenta with the foetus.
 (v) The fluid present between the layers of meninges.
 (vi) Permanently open structures seen on the bark of an old woody stem.
 (vii) The biological process which is the starting point of the food chain.
 (viii) The change in an organism resulting due to stimulus.
 (ix) An Antiseptic substance present in tears.
 (x) A solution in which the relative concentration of water molecules and the solute on either side of the cell membrane is the same.

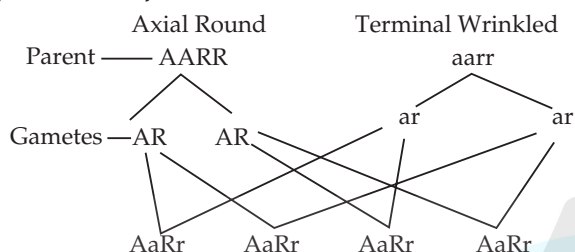
Question 3.

- (a) Draw a diagram of the human eye as seen in a vertical section and label the parts which suits the following descriptions relating to the : [5]
- (i) Photosensitive layer of the eye.
 (ii) Structure which is responsible for holding the eye lens in its position.
 (iii) Structure which maintains the shape of the eye ball and the area of no vision.
 (iv) Anterior chamber seen in front of the eye lens.
 (v) Outermost transparent layer seen in front of the eye ball.
- (b) Differentiate between the following pairs on the basis of what is mentioned within brackets : [5]
- (i) Photolysis and Photophosphorylation. (Definition)
 (ii) Bicuspid valve and Tricuspid valve. (Function)
 (iii) Vasectomy and Tubectomy. (Explain)
 (iv) Cerebrum and Spinal cord. (Arrangement of nerve cells)
 (v) Bowman's capsule and Malpighian capsule. (Parts included)

** Answer is not given due to change in the present syllabus.

Question 4.

- (a) Given below is a schematic diagram showing Mendel's experiment on sweet pea plants having axial flowers with round seeds (AARR) and terminal flowers with wrinkled seeds (aarr). Study the same and answer the questions that follow : [5]

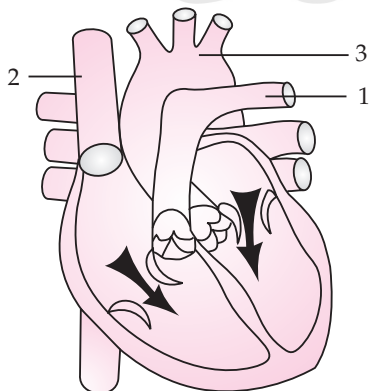


- (i) Give the phenotype of F_1 progeny.
 (ii) Give the phenotypes of F_2 progeny produced upon by the self-pollination of F_1 progeny.
 (iii) Give the phenotypic ratio of F_2 progeny.
 (iv) Name and explain the law induced by Mendel on the basis of the above observation.
 (b) Complete the following table by filling in the blanks from 1 to 10 with appropriate terms :

| S. No. | Gland | Secre-tion | Function / Effect on body |
|--------|-----------------|--------------|---|
| 1. | Thyroid | <u>1</u> | <u>2</u> |
| 2. | <u>3</u> | Vaso-pressin | <u>4</u> |
| 3. | <u>5</u> | <u>6</u> | Promotes glucose utilization by the body cells. |
| 4. | Lacrima gland | <u>7</u> | <u>8</u> |
| 5. | Adrenal medulla | <u>9</u> | <u>10</u> |

Question 5.

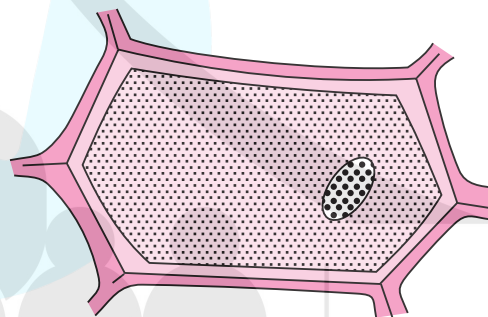
- (a) The diagram given below represents the human heart in one phase of its functional activities. Study the same and answer the questions that follow : [5]



- (i) Name the phase.
 (ii) Label the parts 1, 2 and 3.
 (iii) Which part of the heart is contracting in this phase ? Give a reason to support your answer.
 (iv) Draw well labelled diagrams of part 1 and 2 to show the structural differences between them.
 (b) Give biological reasons for the following : [5]
 (i) The wall of the ventricle is thicker than the auricles.
 (ii) The renal cortex has a dotted appearance.
 (iii) Wooden frames of doors get jammed during the monsoon season.
 (iv) Throat infections can lead to ear infections.
 (v) The hand automatically shows the direction to turn a cycle without thinking.

Question 6.

- (a) The figure given below shows the epidermal cells of an onion bulb. This cell was then transferred to a drop of sugar solution. [5]



- (i) Draw a well labelled diagram of the epidermal cell as it would appear after immersion in a strong sugar solution.
 (ii) What scientific term is used for the changes as shown in (i) above ?
 (iii) What should be done to restore the cell back to its original condition ?
 (iv) Give the scientific term for the recovery of the cell as a result of the step taken in (iii) above.
 (v) Define the term osmosis.
 (b) Briefly explain the following terms : [5]
 (i) Genes.
 (ii) Cytokinesis in plant cells.
 (iii) Guttation
 (iv) Diabetes insipidus.
 (v) Disinfectants.**

Question 7.

- (a) (i) Draw a well labelled diagram to show the anaphase stage of mitosis in a plant cell having four chromosomes. [5]
 (ii) State any two harmful effects of acid rain.
 (iii) Expand the following biological abbreviations :
 (1) NADP (2) ACT

** Answer is not given due to change in the present syllabus.

- (b) (i) List any two major activities of the Red Cross.**
 (ii) Write any two major reasons for the population explosion in the world.

- (iii) Write the names of four nitrogenous bases in a DNA molecule. [5]

ANSWERS

SECTION-I

Answer 1.

- (a) (i) Cyton (ii) Cuticle
 (iii) DDT (iv) Phenotype
 (v) Glomerulus
- (b) (i) **Chloroplast** : In mesophyll cells, located between upper and lower epidermis.
 (ii) **Incus** : In middle ear inside tympanic cavity between malleus and stapes.
 (iii) **Corpus callosum** : Thick band of nerve fibres joining two cerebral hemispheres of cerebrum.
 (iv) **Guard cells** : Pair of guard cells surround the stomata on the upper and lower epidermis of leaf.
 (v) **Pulmonary semilunar valve** : In right ventricle which guards the opening of pulmonary trunk.
- (c) (ii) **Odd term** : Bile
Category : Germ killing secretions
 (iii) **Odd term** : Acromegaly
Category : Effects of abnormal thyroxine secretion
 (iv) **Odd term** : Typing
Category : Unconditioned reflex
 (v) **Odd term** : Tympanum
Category : Parts of inner ear.

(d)

| Sr. No. | Column A | Column B |
|---------|-------------------|------------------|
| (1) | Testis | (f) Gonad |
| (3) | Transpiration | (b) Water vapour |
| (4) | Clotting of blood | (i) Calcium |
| (5) | Urinerous tubule | (a) Kidney |

- (e) (i) (C) Chromosome
 (ii) (C) Systole of left ventricle
 (iii) (B) Homozygous condition
 (iv) (B) Pancreas
 (v) (A) Motor neuron
- (f) (i) **Neutrophils** : Engulf microbes (phagocytosis)
 (ii) **Ureter** : Carries urine from kidneys to the urinary bladder.
 (iii) **Neurotransmitters** : Carry nerve impulse.
 (iv) **Iris of the eye** : Regulate the amount of light entering into the eye by controlling the size of pupil.

- (v) **Placenta** : Transfer nutrients, oxygen, etc. from maternal blood to foetus.

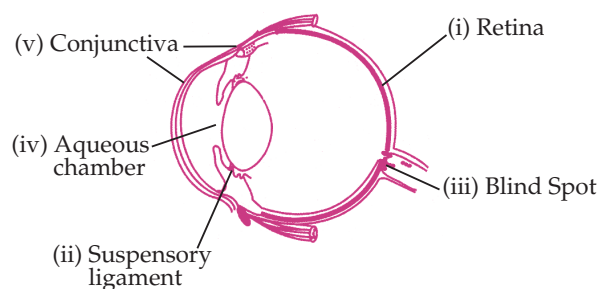
- (g) (i) To prove that CO_2 is necessary for photosynthesis.
 (ii) No CO_2 in the flask.
 (iii) CaO (limestone), potassium pyrogallate.
 (iv) Leaf 1- Will turn brown indicating absence of starch.
 Leaf 2- Will turn blue-black at the end of starch test indicating presence of starch.
- (h) (i) Upper epidermis, palisade tissue, spongy cells, substomatal space, stoma.
 (ii) Receptor, sensory neuron, spinal cord, motor neuron, effector.
 (iii) Soil water, root hair, cortex, endodermis, xylem.
 (iv) Prophase, metaphase, anaphase, telophase, cytokinesis.
 (v) Intestinal artery, intestine, hepatic portal vein, liver, hepatic vein.

SECTION-II

Answer 2.

- (a) (i) 1. Seminiferous tubules
 2. Testicular lobule
 3. Epididymis
 4. Vas deferens
- (ii) 1. **Seminiferous tubules** : Sperm production, nourishment and protection of sperms.
 3. **Epididymis** : Temporary storage and maturation of sperms.
 (iii) Scrotal sac acts as thermoregulator. The temperature in scrotal sac remains $2-3^\circ\text{C}$ lower than the, body temperature which is suitable for maturation of sperms.
 (iv) The inguinal canal allows the descent of testes along with their ducts, blood vessels and nerves.
 (v) Semen is a mixture of mature sperms and secretions of seminal vesicle, Cowper's gland and parostate gland. It is a viscous fluid.
- (b) (ii) Pollutant (iii) Menarche
 (iv) Umbilical cord (v) Cerebrospinal fluid
 (vi) Lenticels (vii) Photosynthesis
 (viii) Response (ix) Lysozyme
 (x) Isotonic

** Answer is not given due to change in the present syllabus.

Answer 3.

(a)

Vertical Section of Eye

(b) (i)

| Photolysis | Photophosphorylation |
|--|--|
| The light energy absorbed by chlorophyll splits water into hydrogen and oxygen and releases two electrons. | The energy rich electrons released during photolysis of water are used in the synthesis of ATP from ADP. |

(ii)

| Bicuspid valve | Tricuspid valve |
|--|--|
| Prevents backflow of blood from right ventricle to right atrium. | Prevents backflow of blood from left ventricle to left atrium. |

(iii) Refer to ICSE Paper, 2015, Answer 4 (b) (iii).

(iv)

| Cerebrum | Spinal cord |
|---|---|
| Outer gray matter that forms the cortex, contains cell bodies of neurons. Inner white matter contains nerve fibres. | Outer white matter contains axons. Inner gray matter contains cell bodies of motor and association neurons. |

(v)

| Bowman's capsule | Malpighian capsule |
|---|-------------------------------|
| Epithelial cells, glomerulus (blood capillaries). | Glomerulus, Bowman's capsule. |

Answer 4.

- (a) (i) Axial flowers and round seeds.
 (ii) (a) Axial flowers and round seeds.
 (b) Axial flowers and wrinkled seeds.
 (c) Terminal flowers and round seeds.
 (d) Terminal flowers and wrinkled seeds.

(iii) 9 : 3 : 3 : 1

(iv) **Law of independent assortment** : When there are two pairs of contrasting characters, the

distribution of factors of each pair in the gametes is independent of the distribution of other pair of characters.

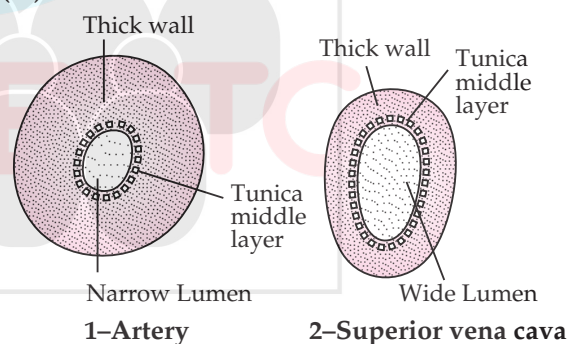
(b) 1–Thyroxine.2–Regulates basal metabolism.3–Posterior lobe of pituitary gland.4–Increases reabsorption of water from urinary filtrate by kidney tubules.5–Pancreas.6–Insulin.7–Tears.8–Lubricates eyeball, keeps the eyes clean and protects the eyes from bacterial infection.9–Adrenaline.10–Increases heart rate and blood pressure.**Answer 5.**

(a) (i) Atrial systole

- (ii) 1. Left pulmonary artery
 2. Superior vena cava
 3. Aorta

(iii) Both atria are contracting in this phase because the cuspid valves are open, allowing blood to flow into ventricles.

(iv)



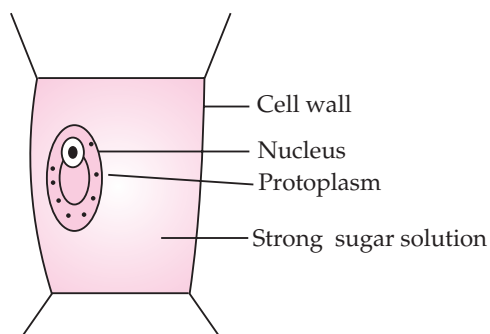
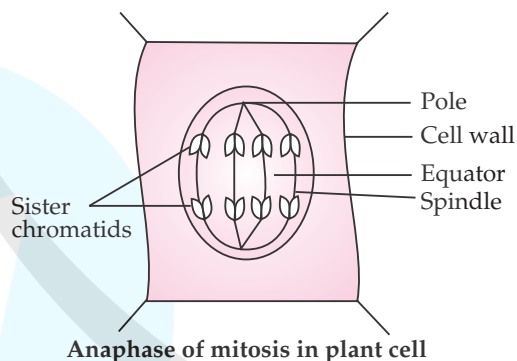
(b) (i) Ventricles pump blood against force of gravity, which requires a great force. To apply this large force without any damage to the walls of ventricles, they are thicker.

(ii) Because of the presence of malpighian capsules.

(iii) Lignified dead cells imbibe moisture and thus swell up during the monsoon season.

(iv) Because eustachian tube connects middle ear with the throat, so infection can be passed.

(v) Because of conditioned reflex which we learn by experience and gradually responds to it unconsciously.

Answer 6.**(a) (i)****(ii)** Plasmolysis or flaccidity.**(iii)** It has to be placed in a hypotonic solution so, that water will enter the cell by endosmosis and the cell will regain its original shape.**(iv)** Deplasmolysis.**(v)** Osmosis is the diffusion of water molecules through a semi-permeable membrane from a region of higher concentration of water molecules to a region of lower concentration of water molecules.**(b) (i) Genes :** Gene is a basic unit of inheritance for a given character. Genes are specific sequence of nucleotides located in a chromosome which code for a particular protein which is expressed in the form of a visible character of the body.**(ii) Cytokinesis in plant cells :** Process in which the cytoplasmic content of the cell is divided into two new daughter cells by formation of a cell plate which extends from centre to periphery of the cell is called cytokinesis.**(iii) Guttation :** In herbs, when root pressure is high and transpiration low, water is forced out in the form of drops from the margins or tips of leaves through special pores called hydathodes. This process is known as guttation.**(iv) Diabetes insipidus :** It is a disease caused due to the deficiency of ADH (antidiuretic hormone) in which large amount of urine is secreted, resulting loss of water from the body.**Answer 7.****(a) (i)****(ii) 1.** Destroys the soil as well as the crop.**2.** Acid rain corrodes the buildings, statues, etc.**(iii) (1)** $\text{NADP} \rightarrow \text{Nicotinamide Adenine Dinucleotide Phosphate.}$ **(2)** $\text{ACT} \rightarrow \text{Adreno Cortico Tropin.}$ **(b) (ii) 1. Economic reasons :** Children are considered to be helping hands to increase the family income.**2. Desire for a male child :** In the desire of having a son, people give birth to many children.**(iii)** Adenine, Guanine, Cytosine, Thymine.

● ●

GURUKUL

QUESTIONS

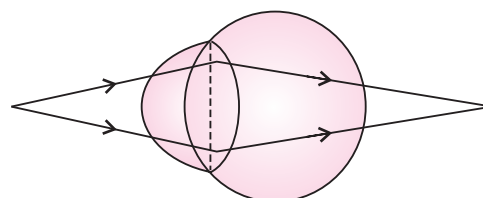
SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Name the following : [5]
- (i) The phenomenon by which living or dead plant cells absorb water by surface attraction.
 - (ii) The phase of cardiac cycle in which the auricles contract.
 - (iii) The organ where urea is produced.
 - (iv) The hormone that helps increase the reabsorption of water from the kidney tubules.
 - (v) Chemical substances produced by micro-organisms that can kill or inhibit the growth of other micro-organisms.**
- (b) Choose the correct answer from the four options given below each statement : [5]
- (i) BCG vaccine is used to build immunity against : **
 - (A) Poliomyelitis
 - (B) Tuberculosis
 - (C) Malaria
 - (D) Whooping cough.
 - (ii) A plant is kept in a dark cupboard for about 48 hours before conducting any experiment on photosynthesis to :
 - (A) Remove starch from the plant.
 - (B) Ensure that starch is not translocated from the leaves.
 - (C) Remove chlorophyll from the leaf of the plant.
 - (D) Remove starch from the experimental leaf.
 - (iii) The part of the human eye where rod cells and cone cells are located is the :
 - (A) Retina
 - (B) Cornea
 - (C) Choroid
 - (D) Sclera.
 - (iv) A reflex arc in man is best described as movement of stimuli from :
 - (A) Receptor cell, sensory neuron, relaying neuron, effector muscles.
 - (B) Receptor cell, efferent nerve, relaying neuron, muscles of the body.
 - (C) Receptor cell, spinal cord, motor neuron, relaying neuron.
 - (D) Receptor cell, synapse, motor neuron, relaying neuron.

- (v) NADP is expanded as :
 (A) Nicotinamide adenosine dinucleotide phosphate.
 (B) Nicotinamide adenine dinucleotide phosphate
 (C) Nicotinamide adenine dinucleous phosphate
 (D) Nicotinamide adenosine dinucleous phosphate.
- (c) State the main function of the following : [5]
- (i) Chordae tendinae
 - (ii) Lymphocytes**
 - (iii) Seminiferous tubule
 - (iv) Thylakoids
 - (v) Beta cells of pancreas
- (d) Give the exact location of the following : [5]
- (i) Lenticels
 - (ii) Prostate gland
 - (iii) Thyroid gland
 - (iv) Centrosome
 - (v) Mitral valve.
- (e) Given below are sets of five terms each. In each case rewrite the terms in logical sequence as directed at the end of each statement. An example has been done for you : [5]
- Example : Cortical cells, Root hair, xylem, Soil water, endodermis (absorption of water by the plants)
 Answer : Soil water, Root hair, cortical cells, endodermis, xylem.
- (i) Active immunity, Antigen, Antibody, Bacteria, Lymphocytes (defence mechanism of the body).**
 - (ii) Implantation, Parturition, Ovulation, Gestation, Fertilization (stages leading to formation of foetus and birth).
 - (iii) Oval window, Tympanum, Cochlea, Auditory canal, Ear ossicles (path through which a vibration of sound is transferred in the human ear).
 - (iv) Karyokinesis, S-phase, Cytokinesis, G₁-phase, G₂-phase (cell cycle).
 - (v) Renal vein, Renal artery, Afferent arteriole, Efferent arteriole, Glomerulus (pathway of blood through glomerulus).
- (f) Study the following diagram carefully and then answer the questions that follow. The diagram is depicting a defect of the human eye : [5]



** Answer is not given due to change in the present syllabus.

- (i) Identify the defect shown in the diagram.
 (ii) Give two possible reasons for the above defect.
 (iii) Draw a neat labelled diagram to show how the above defect can be rectified.
- (g) Match the items in Column A with that which is most appropriate in Column B. Rewrite the matching pairs : [5]

| Column A | Column B |
|----------------------------|----------------------------|
| (1) Potometer | (a) Antiseptic |
| (2) Hypothalamus | (b) Disinfectants |
| (3) Formalin** | (c) Vasectomy |
| (4) Contraception in males | (d) Sudden change in genes |
| (5) Mutation | (e) Pituitary gland |
| | (f) Tubectomy |
| | (g) Transpiration |
| | (h) Thyroid gland |
| | (i) Alleles |
| | (j) Photosynthesis |

- (h) Given below are six sets with four terms each. In each set a term is an odd one and cannot be grouped in the same category to which the other three belong. Identify the odd one in each set and name the category to which the remaining three belong. The first has been done for you as an example. [5]

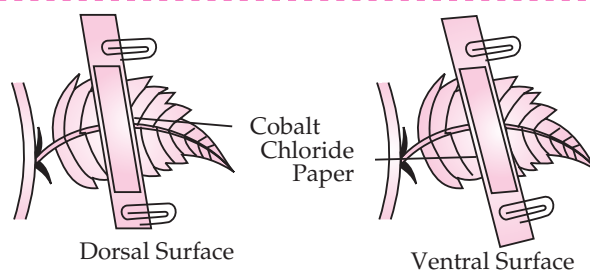
| No. | Set | Odd one | Category |
|--------|--|------------|---------------------|
| e.g. : | Cell wall, large vacuole, plastids, centrosome | Centrosome | Parts of plant cell |
| (i) | Cerebrum, cerebellum, thalamus, hypothalamus | | |
| (ii) | Ovary, ureter, fallopian tube, uterus | | |
| (iii) | Adrenal gland, liver, thyroid gland, pituitary gland | | |
| (iv) | Malleus, pinna, incus, stapes | | |
| (v) | Haemophilia, colour blindness, albinism, night blindness | | |

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

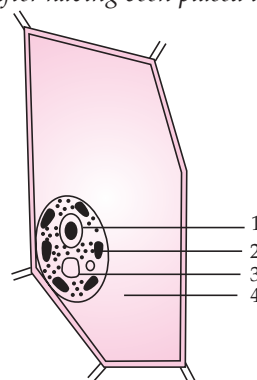
- (a) Given below is an experimental set up to demonstrate a particular process. Study the same and answer the questions that follow : [5]



- (i) Name the physiological process being studied.
 (ii) Explain the process mentioned above.
 (iii) What is the aim of the above experiment ?
 (iv) What would you observe in the experimental set-up after an hour ? Give a reason to support your answer.
 (v) Mention any three adaptations found in plants to overcome the physiological process mentioned in (i) above.
- (b) Give the biological/technical terms for the following : [5]
- (i) A membrane which allows the passage of molecules selectively.
 (ii) The suppressed allele of a gene.
 (iii) Structure that carries visual stimuli from retina to the brain.
 (iv) WBCs squeeze through the walls of the capillaries into the tissue.
 (v) Protective coverings located round the human brain and spinal cord.
 (vi) Eye lens losing flexibility resulting in a kind of long sightedness in elderly people.
 (vii) Hormones which stimulate other endocrine glands to produce their specific hormones.
 (viii) The phase in the menstrual cycle in which the remnant of follicle in the ovary turns to Corpus luteum.
 (ix) Statistical study of human population.
 (x) Artificially introducing weakened germs or germ substances into the body for developing resistance to a particular disease.**

Question 3.

- (a) Given below is the diagram of a cell as seen under the microscope after having been placed in a solution : [5]



** Answer is not given due to change in the present syllabus.

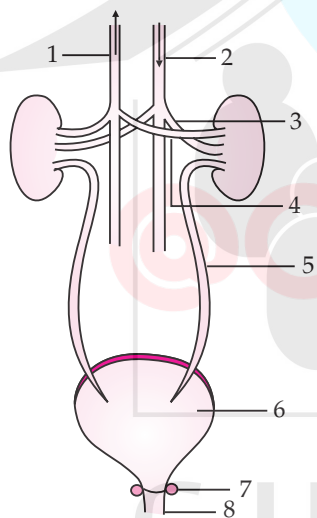
- (i) What is the technical term used for the state/condition of the cell given above ?
- (ii) Give the technical term for the solution in which the cell was placed.
- (iii) Name the parts numbered 1 to 4.
- (iv) Is the cell given above a plant cell or an animal cell ? Give two reasons in support of your answer as evident from the diagram.
- (v) What would you do to bring this cell back to its original condition ?

(b) Differentiate between the following pairs on the basis of what is mentioned in brackets : [5]

- (i) Natality and Mortality (definition)
- (ii) Stoma and Stroma (describe its structure)
- (iii) Acromegaly and Cretinism (symptoms)
- (iv) Transpiration and Guttation (structures involved)
- (v) Diabetes mellitus and Diabetes insipidus (reason/cause)

Question 4.

(a) The diagram below shows the excretory system of a human being. Study the same and then answer the questions that follow : [5]



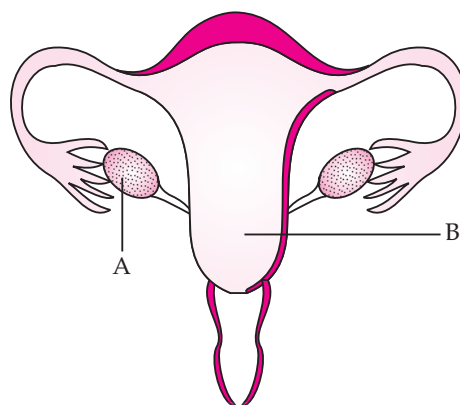
- (i) Name the parts labelled 1, 2, 3, and 4.
- (ii) Give the main function of the parts labelled 5, 6, 7 and 8.
- (iii) Name the endocrine gland which could be added in the diagram and state its location/position.

(b) Briefly explain the following : [5]

- (i) Osmosis (ii) Allele
- (iii) Pulse (iv) Reflex action
- (v) Synapse.

Question 5.

(a) Study the diagram given below and then answer the questions that follow : [5]



(i) Name the part labelled A. Name any two hormones produced by the part labelled A.

(ii) What happens to the part labelled B—

- (1) If fertilization takes place ?
- (2) If fertilization does not take place ?

(iii) Where does fertilization occur ?

(iv) Draw a neat diagram of the human sperm as seen under high magnification and label the following parts.

- (1) Acrosome (2) Mitochondria

(b) A homozygous plant having round (R) and yellow (Y) seed is crossed with homozygous plant having wrinkled (r) and green (y) seeds : [5]

(i) Give the scientific name of the plant on which Mendel conducted his hybridization experiments.

(ii) Give the genotype of the F_1 generation.

(iii) Give the dihybrid phenotypic ratio and the phenotype of the offspring of the F_2 generation when two plants of the F_1 generation are crossed.

(iv) Name and state the law which explains the dihybrid ratio.

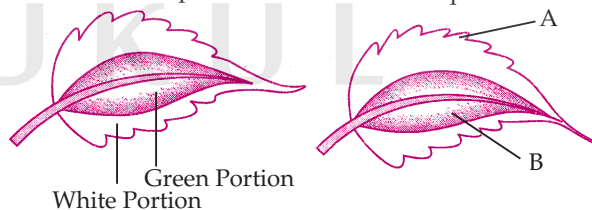
(v) Give the possible combinations of gametes that can be obtained from F_1 hybrid. [5]

Question 6.

(a) The diagram given below is an experiment conducted to study a factor necessary for Photosynthesis. Observe the diagrams and then answer the following questions : [5]

Before the Experiment

After the Experiment



(i) What is the aim of the experiment ?

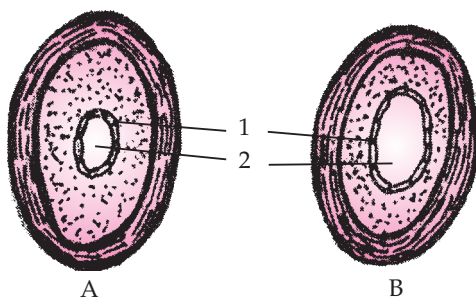
(ii) Name the test performed on the leaf and the solution used for the test.

(iii) What type of leaf was used for the experiment ? Give an example.

(iv) What is the expected result of the above test on the parts labelled A and B ?

(v) Give a balanced chemical equation to represent the process of Photosynthesis.

- (b) The diagrams given below show the cross section of two kinds of blood vessels :



- (i) Identify the blood vessels A and B. In each case give a reason to support your answer.
 (ii) Name the parts numbered 1 and 2.
 (iii) When are the sounds "LUBB" and "DUPP" produced during a heartbeat?
 (iv) Name the blood vessel that :
 (1) begins and ends in capillaries.
 (2) supplies blood to the walls of the heart.

Question 7.

- (a) Answer the following :
 (i) Draw a well labelled diagram of a 'Neuron' and name the following parts :
 (1) Node of Ranvier (2) Nissl granules
 (3) Cyton
 (ii) Name the part of the human brain which is concerned with the following :
 (1) Seat of memory
 (2) Coordinates muscular activity.
 (iii) Mention any three major activities of the WHO.**
 (b) (i) Draw a well labelled diagram to show the metaphase stage of mitosis in an animal cell having four chromosomes.
 (ii) Mention any two reasons for the population explosion in INDIA.
 (iii) Give biological reasons for the following :
 (1) Pituitary gland is also known as the master gland.
 (2) Gametes have a haploid number of chromosomes.

ANSWERS

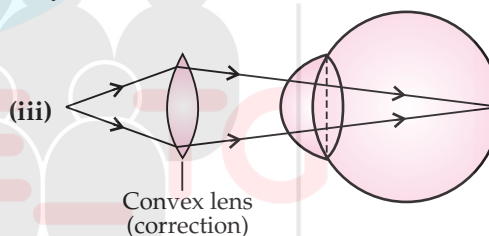
SECTION-I

Answer 1.

- (a) (i) Imbibition (ii) Atrial systole
 (iii) Liver
 (iv) Vasopressin or Antidiuretic Hormone (ADH)
 (b) (ii) (A) (iii) (A)
 (iv) (A) (v) (B)
 (c) (i) **Chordae tendinae** : Keeps the valves in position and prevents the backflow of blood in the atria.
 (iii) **Seminiferous tubule** : Formation of sperms by spermatogenesis.
 (iv) **Thylakoids** : Absorb sunlight for the photosynthesis process to occur.
 (v) **Beta cells of pancreas** : Produce insulin.
 (d) (i) **Lenticels** : Loose aggregation of cells in the bark of the stems and roots of certain plants for gaseous exchange.
 (ii) **Prostate gland** : At the base of urinary bladder.
 (iii) **Thyroid gland** : In the neck region at the base of larynx.
 (iv) **Centrosome** : Situated close to the nucleus in Eukaryotic cell.
 (v) **Mitral valve or bicuspid valve** : Present in the left atrio-ventricular aperture within the heart.
 (e) (ii) Ovulation, fertilization, implantation, gestation, parturition.
 (iii) Auditory canal, tympanum, ear ossicles, oval window, cochlea.
 (iv) G₁-phase, S-phase, G₂-phase, Karyokinesis, Cytokinesis.

- (v) Renal artery, afferent arteriole, glomerulus, efferent arteriole, renal vein.

- (f) (i) Far sightness or hypermetropia.
 (ii) 1. Lens is flattened or less convex.
 2. Eyeball is short from front to back.



(g)

| Column A | Column B |
|----------------------------|----------------------------|
| (1) Potometer | (g) Transpiration |
| (2) Hypothalamus | (e) Pituitary gland |
| (4) Contraception in males | (c) Vasectomy |
| (5) Mutation | (d) Sudden change in genes |

(h)

| Odd one | Category |
|---------------------|-------------------------------------|
| (i) Cerebellum | Parts of forebrain |
| (ii) Ureter | Parts of female reproductive system |
| (iii) Liver | Endocrine glands |
| (iv) Pinna | Ear ossicles |
| (v) Night blindness | Sex-linked inheritance |

** Answer is not given due to change in the present syllabus.

SECTION-II

Answer 2.

- (a) (i) Transpiration
 (ii) Transpiration is the loss of water in the form of vapours from the aerial parts of the plant.
 (iii) To show that more transpiration occurs from the under surface of the leaf.
 (iv) Cobalt chloride paper in the lower surface will turn pink faster because of presence of more stomata present on the under surface.
 (v) 1. Sunken stomata, 2. Presence of thick cuticle, 3. Fewer stomata.
- (b) (i) Semi-permeable membrane
 (ii) Recessive allele
 (iii) Optic nerve (iv) Diapedesis
 (v) Meninges (vi) Presbyopia
 (vii) Tropic hormones (viii) Luteal phase
 (ix) Demography

Answer 3.

- (a) (i) Plasmolysed
 (ii) Hypertonic solution
 (iii) 1. Nucleus, 2. Chloroplast, 3. Vacuole, 4. Hypertonic solution.
 (iv) Plant cell
Reason : 1. Presence of cell wall, 2. Presence of large vacuole.
 (v) It has to be placed in a hypotonic solution so, that water will enter the cell by endosmosis and the cell will regain its original shape.

- (b) (i)

| Natality | Mortality |
|--|---|
| Number of live births per 1000 individuals of a population per year. | Number of deaths per 1000 individuals of a population per year. |

- (ii)

| Stoma | Stroma |
|--|--|
| Minute openings surrounded by guard cells present in the epidermal layers of the leaf. | Ground substance of chloroplast containing ribosome and DNA. |

- (iii)

| Acromegaly | Cretinism |
|--|---|
| Elongation, enlargement of bones and jaws. | Poor physical and mental development, delayed growth, short hands and feet, dry skin. |

- (iv)

| Transpiration | Guttation |
|----------------------------------|---|
| Stomata, cuticles and lenticels. | Hydathodes, present on the leaf margin. |

- (v)

| Diabetes Mellitus | Diabetes Insipidus |
|------------------------------------|-------------------------------------|
| Insufficient secretion of insulin. | Deficiency of antidiuretic hormone. |

Answer 4.

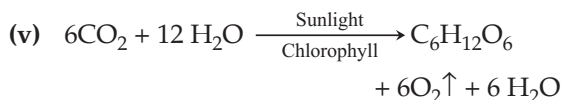
- (a) (i) 1. Posterior vena cava, 2. Aorta, 3. Renal artery, 4. Renal vein
 (ii) 5. Ureter—Carries urine to the bladder from the kidney.
 6. Urinary bladder : Temporarily stores urine.
 7. Sphincter muscle : Controls the voiding of urine.
 8. Urethra : Release urine periodically.
 (iii) Adrenal gland—At the top of each kidney.
- (b) (i) **Osmosis** : It is the diffusion of water molecules through a semi-permeable membrane from a region of higher concentration of water to a region of its low concentration.
 (ii) **Allele** : It is one of the alternative form of the same gene responsible for determining contrasting characteristics.
 (iii) **Pulse** : Rhythmic contraction of heart and elastic recoil of the wall of the artery during ventricular systole is called pulse.
 (iv) **Reflex action** : Reflex action is the automatic, quick and involuntary action initiated by external stimulus at the level of spinal cord without the involvement of brain.
 (v) **Synapse** : It is the point of contact between the axon ending of one neuron and dendrites of the other neuron for the transmission of impulse signal.

Answer 5.

- (a) (i) A is ovary. Hormones are oestrogen and progesterone.
 (ii) (1) If the fertilization takes place, uterus gets prepared to receive the embryo. The uterine lining becomes thick. The blastocyst gets implanted in the endometrial lining and there is no menstrual discharge.
 (2) If there is no fertilization, uterine lining is shed off with blood flow.
 (iii) Fallopian tube.
 (iv) Refer to ICSE Paper, 2018, Answer 3 (a) (v).
- (b) (i) *Pisum sativum*.
 (ii) RrYy
 (iii) 9 : 3 : 3 : 1—Yellow round (9), green round (3), yellow wrinkled (3), green wrinkled (1).
 (iv) Law of independent assortment, which states that when there are two pairs of contrasting characters, the distribution of factors of each pair in the gametes is independent of the distribution of other pair of character.
 (v) YR, Yr, yR, yr.

Answer 6.

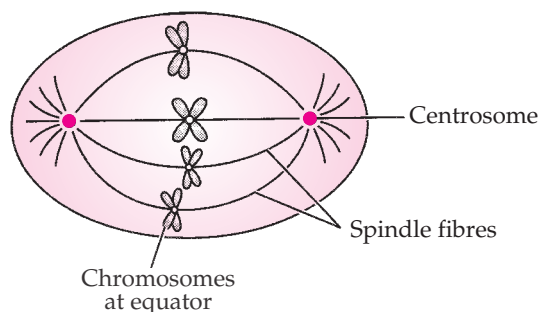
- (a) (i) To show that chlorophyll is necessary for photosynthesis.
 (ii) Starch test, and the solution used is iodine solution.
 (iii) Variegated leaf, example—croton
 (iv) Green part (B) will turn blue-black, part (A) will turn brown



- (b) (i) A—Artery, B—Vein, because in A lumen is narrow, in B lumen is wide.
 (ii) 1 — Endothelium, 2 — Lumen.
 (iii) “LUBB” sound is produced when ventricles contract and atrio-ventricular valves get closed at the beginning of ventricular systole.
 “DUPP” sound is produced by the closure of semilunar valves at the beginning of ventricular diastole.
 (iv) (1) Hepatic portal vein
 (2) Coronary artery

Answer 7.

- (a) (i) Refer to ICSE Paper, 2015, Answer 5 (b) (ii).
 (ii) (1) Cerebrum (2) Cerebellum
 (b) (i)



- (ii) 1. Strong urge among people to have male children.
 2. Children are considered to be helping hands to increase the family income.
 (iii) (1) Because it controls the secretion of the hormones of other endocrine glands.
 (2) Because after sexual reproduction, the diploid number of chromosome is maintained.

••

GURUKUL

QUESTIONS

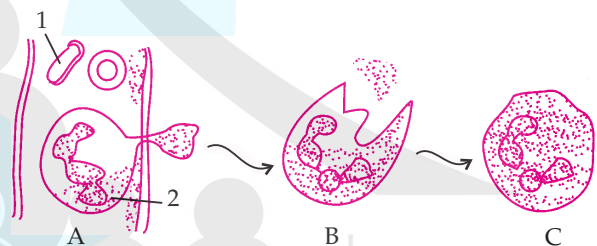
SECTION-I (40 Marks)

Attempt **all** questions from this Section.

Question 1.

- (a) Name the following : [5]
- The mineral element essential for the clotting of blood.
 - The cells of the testes that produce male hormones.
 - The nutritive layer of the eye which also prevents reflection of light.
 - The structural and functional unit of the kidney.
 - The part of the chloroplast where the light reaction of photosynthesis takes place.
- (b) State the main function of the following : [5]
- Yellow spot
 - Coronary artery
 - Medulla oblongata
 - Thrombocytes
 - Vitreous humour.
- (c) Copy and complete the following by filling in the blanks 1 to 5 with appropriate words/terms/phrases : [5]
- To test the leaf for starch, the leaf is boiled in water to.....(1). It is next boiled in methylated spirit to.....(2). The leaf is placed in warm water to soften it. It is then placed in a dish and.....(3) solution is added. The region, which contains, starch, turns.....(4) and the region, which does not contain starch, turns.....(5).
- (d) Give the exact location of : [5]
- Hydathodes
 - Organ of corti
 - Mitral valve
 - Pituitary gland
 - Amnion
- (e) State whether the following statements are True or False. If False **rewrite** the correct form of the statement by changing the **first or last word** only : [5]
- Lysosomes is a part of the cell in which chromosomes are present.
 - Urethra carries urine from kidney to the urinary bladder.
 - Centromere is the organelle of the cell that initiates cell division.
 - Gestation is the process of fixing of the zygote to the uterine wall.
 - Penicillin obtained from *Pencillium notatum* is an antibody.**
- (f) Rewrite and complete the following sentences by inserting the correct word in the space indicated : [5]

-vaccine is given to build up immunity against polio.**
 - Phenotype is the observable characteristic which is.....controlled.
 - Wooden doors swell up in rainy season due to.....
 - The blood vessel that begins and ends in capillaries is the.....
 - is the phenomenon of contraction of the cytoplasm from the cell wall.
- (g) Study the following diagram carefully and then answer the questions that follow : [5]



- Name the cell labelled 1.
 - Identify the phenomenon occurring in A.
 - Mention two structural differences between 1 and 2.
 - Name the process occurring in B and C and state the importance of this process in the human body.
- (h) Match the items in Column I with that which is most appropriate in Column II. [5]

| Column I | Column II |
|--------------------|---|
| (1) Pacemaker | (a) Associated with static body balance |
| (2) Stroma | (b) Chordae tendinae |
| (3) Afferent nerve | (c) Site of light reaction |
| (4) Prolactin | (d) Motor neuron |
| (5) Saccules | (e) S A node |
| | (f) Stimulates production of milk by the mammary gland |
| | (g) Site of dark reaction |
| | (h) Transmits impulses from receptor organ to spinal cord |

** Answer is not given due to change in the present syllabus.

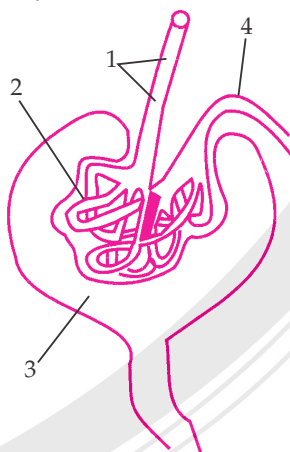
- | |
|---|
| (i) Secreted by anterior lobe of Pituitary gland |
| (j) Transfers impulses from spinal cord to muscles. |

SECTION-II (40 Marks)

Attempt any **four** questions from this Section.

Question 2.

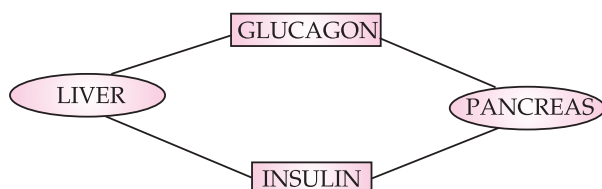
- (a) Study the diagram given below and then answer the questions that follow : [5]



- (i) Name the region in the kidney where the above structure is present.
- (ii) Name the parts labelled 1, 2, 3 and 4.
- (iii) Name the stages involved in the formation of urine.
- (iv) What is the technical term given to the process occurring in 2 and 3? Briefly describe the process.
- (b) Give reasons for the following : [5]
- (i) Photosynthesis is considered as a process supporting all life on earth.
- (ii) A matured mammalian erythrocyte lacks nucleus and mitochondria.
- (iii) Potato cubes when placed in water become firm and increase in size.
- (iv) Urine is slightly thicker in summer than in winter.
- (v) People living in hilly regions usually suffer from simple goitre.

Question 3.

- (a) Study the diagram given below and then answer the questions that follow : [5]



- (i) Name the cells of the pancreas that produce (1) glucagon, (2) insulin.

- (ii) State the main function of (1) glucagon, (2) insulin.

- (iii) Why is the pancreas referred to as an exo-endocrine gland?

- (iv) Why is insulin not given orally but is injected into the body?

- (v) What is the technical term for the cells of the pancreas that produce endocrine hormones?

- (vi) Where in the body is the pancreas located?

- (b) With reference to the functioning of the eye, answer the questions that follow : [5]

- (i) What is meant by power of accommodation of the eye?

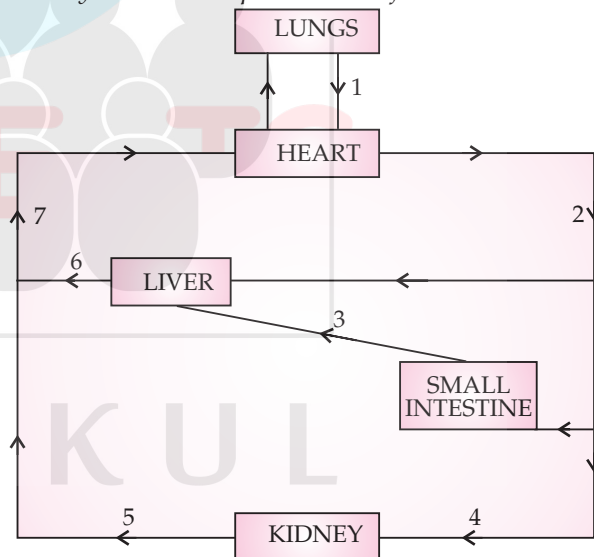
- (ii) What is the shape of the lens during (1) near vision, (2) distant vision?

- (iii) Name the two structures in the eye responsible for bringing about the change in the shape of the lens.

- (iv) Name the cells of the retina and their respective pigments which get activated (1) in the dark, (2) in light.

Question 4.

- (a) The diagram below represents circulation in the human body. Answer the questions that follow : [5]



- (i) Name the blood vessels labelled 1, 3, 6 and 7.
- (ii) Name the blood vessel that supplies the walls of the heart with oxygen.
- (iii) Draw a neat labelled diagram of the blood vessel numbered '2' as seen in a cross section.
- (iv) Mention one structural difference between blood vessels numbered 4 and 5.

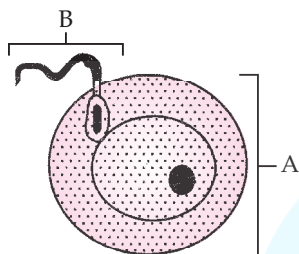
- (b) With reference to the human ear, answer the questions that follow : [5]

- (i) Give the technical term for the structure found in the inner ear.

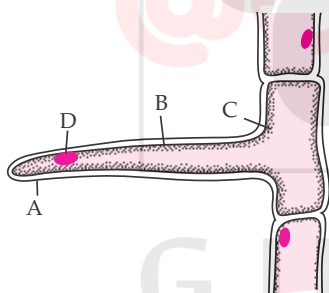
- (ii) Name the three small bones present in the middle ear. What is the biological term for them collectively ?
 (iii) Name the part of the ear associated with (1) static balance, (2) hearing, (3) dynamic balance.
 (iv) Name the nerve, which transmits messages from the ear to the brain.

Question 5.

- (a) The diagram below represents two reproductive cells A and B. Study the same and then answer the questions that follow : [5]



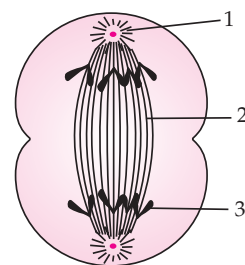
- (i) Identify the reproductive cells A and B.
 (ii) Name the specific part of the reproductive system where the above cells are produced.
 (iii) Where in the female reproductive system do these cells unite ?
 (iv) Name the main hormones secreted by the (1) ovary, (2) testes.
 (v) Name an accessory gland found in the male reproductive system and state the function of its secretion.
 (b) The diagram below represents a layer of epidermal cells showing a fully-grown root hair. Study the diagram and answer the questions that follow : [5]



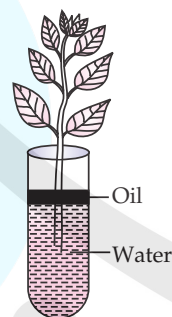
- (i) Name the parts labelled A, B, C and D.
 (ii) The root hair cell is in a turgid state. Name and explain the process that caused this state.
 (iii) Mention one distinct difference between the parts labelled A and B.
 (iv) Draw a diagram of the above root hair cell as it would appear when a concentrated solution of fertilizers is added near it.

Question 6.

- (a) The diagram below represents a stage during cell division. Study the same and then answer the questions that follow : [5]



- (i) Name the parts labelled 1, 2 and 3.
 (ii) Identify the above stage and give a reason to support your answer.
 (iii) Mention where in the body this type of cell division occurs.
 (iv) Name the stage prior to this stage and draw a diagram to represent the same.
 (b) Study the diagram given below and answer the questions that follow : [5]



- (i) Name the process being studied in the above experiment.
 (ii) Explain the process mentioned in (i) above.
 (iii) Why is oil placed over water ?
 (iv) What do we observe with regard to the level of water when this set up is placed in (1) bright sunlight, (2) humid conditions, (3) windy day ?
 (v) Mention any three adaptations found in plants to overcome the process mentioned in (ii) above.

Question 7.

- (a) (i) During a street fight between two individuals, mention the effects on the following organs by the autonomous nervous system, in the table given below : (one has been done for you as an example) [5]

| Organ | Sympathetic system | Parasympathetic system |
|----------------------|---------------------------------|------------------------------------|
| e.g. Lungs | Dilates bronchi and bronchioles | Constricts bronchi and bronchioles |
| (1) Heart | | |
| (2) Pupil of the eye | | |
| (3) Salivary gland | | |

- (ii) List four major activities of the Red Cross.**
 (b) Write down the difference between the following pairs as indicated within the brackets : [5]
 (i) Antiseptic and disinfectant (an example for each).**

** Answer is not given due to change in the present syllabus.

- (ii) Erythrocytes and leucocytes (function).
 (iii) Guttation and bleeding in plants (cause)

- (iv) NADP and AIDS (expand the abbreviation).
 (v) Monohybrid and Dihybrid cross (phenotypic ratio).

ANSWERS

SECTION-I

Answer 1.

- (a) (i) Calcium
 (ii) Interstitial cells/Leydig cells
 (iii) Choroid
 (iv) Nephron/Uriferous tubule
 (v) Thylakoids
- (b) (i) It is the region of best, clearest and sharpest vision.
 (ii) It carries oxygenated blood to the muscles of heart.
 (iii) It controls involuntary functions of the body like heart beat, breathing etc.
 (iv) Thrombocytes help in clotting of blood.
 (v) It maintains the shape of eyeball.
- (c) (1) Kill the cells (2) Remove chlorophyll
 (3) Iodine (4) Blue-black
 (5) Yellowish Brown
- (d) (i) At the tip and margins of leaves.
 (ii) In the endolymph, present in the middle canal of cochlea.
 (iii) Between the opening of left auricle and left ventricle.
 (iv) At the base of brain.
 (v) Around the embryo in the uterus.
- (e) (i) False. **Nucleus** is a part of the cell in which chromosomes are present.
 (ii) False. **Ureter** carries urine from kidney to the urinary bladder.
 (iii) False. **Centrosome** is the organelle of the cell that initiates cell division.
 (iv) False. **Implantation** is the process of fixing of the zygote to the uterine wall.
- (f) (ii) Phenotype is the observable characteristic which is **genetically** controlled.
 (iii) Wooden doors swell up in rainy season due to **imbibition**.
 (iv) The blood vessel that begins and ends in capillaries is the **portal vein**.
 (v) **Plasmolysis** is the phenomenon of contraction of the cytoplasm from the cell wall.
- (g) (i) 1-Red blood cell/Erythrocyte
 (ii) Diapedesis

(iii)

| | 1 | 2 |
|-----|---------------------|-------------------------------|
| (a) | Non-nucleated. | Nucleated. |
| (b) | Round, disc shaped. | Amoeboid, irregular in shape. |

- (iv) **Phagocytosis** : By this process, the WBCs destroy the germs coming into the body.

| Column I | Column II |
|--------------------|---|
| (1) Pacemaker | (e) SA node |
| (2) Stroma | (g) Site of dark reaction |
| (3) Afferent nerve | (h) Transmits impulses from receptor organ to spinal cord |
| (4) Prolactin | (f) Stimulates production of milk by the mammary gland |
| (5) Saccules | (a) Associated with static body balance |

SECTION-II

Answer 2.

- (a) (i) Renal cortex
 (ii) 1. Afferent arteriole
 2. Glomerulus
 3. Bowman's capsule
 4. Efferent arteriole
- (iii) Ultrafiltration, reabsorption and tubular secretion.
- (iv) **Ultrafiltration** : In it, blood entering the glomerulus under great pressure is filtered. The reason for this greater pressure is that the efferent arteriole is narrower than the afferent arteriole. The liquid part of the blood filters through the walls of glomerular capillaries and Bowman's capsule and enters into the nephron where it is called the glomerular filtrate.
- (b) (i) This process produces food and releases oxygen, both of which are necessary to maintain life on earth.
 (ii) Absence of nucleus gives the RBCs a biconcave shape which increases its surface area for absorption and transportation of oxygen. Lack of mitochondria ensures anaerobic respiration in them so that the oxygen they transport will not be used by them.

(iii) Cells of potato are hypertonic and water enters into them due to endosmosis. This more water increases the size of the cells of the potato cubes. At this time due to turgor pressure and wall pressure, the potato becomes firm.

(iv) In summer, water is lost from the body through sweating. To compensate for the loss, much water is reabsorbed by the kidney tubules and put back in blood and this makes the urine concentrated. In winter, all this water is lost from the body through urine only, that is why, is thinner.

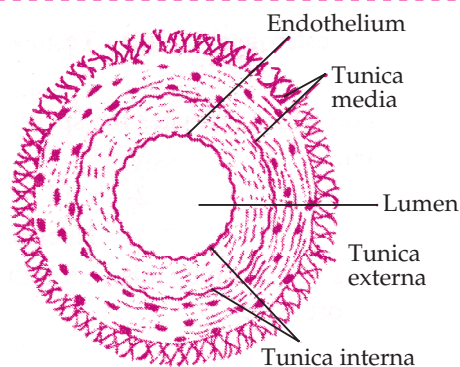
(v) In hilly regions, soil is deficient in iodine. People thus have deficiency of iodine in their diet. Deficiency of iodine causes thyroid gland to enlarge in effort to produce more hormone.

Answer 3.

- (a) (i) (1) Alpha cells of islet of Langerhans
(2) Beta cells of islet of Langerhans.
- (ii) (1) In case of low blood sugar levels, glucagon stimulates the breakdown of glycogen into glucose in the liver and raises blood sugar level.
- (2) Insulin controls high blood sugar level in the body. It promotes conversion of glucose to glycogen in the liver.
- (iii) Pancreas produces pancreatic juice which is carried by pancreatic duct into the duodenum. It also produces hormones which are poured into blood. Because of this dual activity, it is called an exo-endocrine gland.
- (iv) If insulin is given orally, it will be digested by the protein digesting enzymes in the stomach. Hence, it has to be injected.
- (v) Islets of Langerhans.
- (vi) Below the stomach.
- (b) (i) It is the ability of the body to focus clearly on objects, both close and distant from the eye.
- (ii) (1) More convex or almost round
(2) Less convex or almost flat
- (iii) Ciliary muscles and suspensory ligaments.
- (iv) (1) Rods, rhodopsin
(2) Cones, iodopsin

Answer 4.

- (a) (i) 1. Pulmonary vein
3. Hepatic portal vein
6. Hepatic vein
7. Inferior vena cava.
- (ii) Coronary arteries
- (iii) Top sectional view of Artery



(iv)

| 4 (Renal Artery) | 5 (Renal Vein) |
|-------------------------------|------------------------------|
| Wall thick and more muscular. | Wall thin and less muscular. |

- (b) (i) Membranous labyrinth
(ii) Malleus, incus, stapes. Collectively called ear ossicles.
(iii) (1) Utriculus and sacculus
(2) Cochlea
(3) Semi-circular canals
(iv) Auditory nerve.

Answer 5.

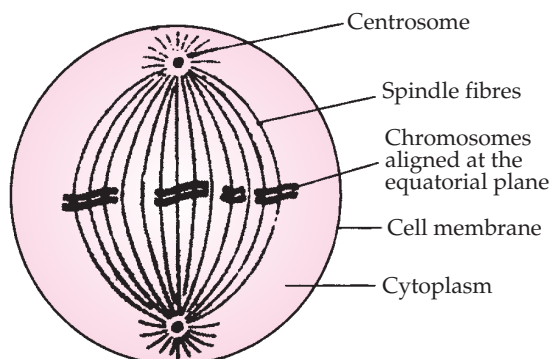
- (a) (i) A—Ovum B—Sperm
(ii) A is produced in ovary. B is produced in testes by the seminiferous tubules.
(iii) Oviduct or Fallopian Tube
(iv) (1) Progesterone and Oestrogen
(2) Testosterone
(v) Seminal vesicles.
They produce secretion which activates the sperms and provide a medium for their transportation.
- (b) (i) A—Cell wall B—Cell membrane
C—Cytoplasm D—Nucleus
(ii) The process is called endosmosis and is defined as the movement of solvent (water) from outside to inside of the cell.
(iii)

| A (Cell wall) | B (Cell membrane) |
|-------------------------|-----------------------|
| It is freely permeable. | It is semi-permeable. |

(iv) Refer to ICSE Paper, 2016, Answer 2 (a) (v).

Answer 6.

- (a) (i) 1. Aster rays 2. Spindle fibre
3. Chromatid
(ii) **Anaphase**—The two sister chromatids of each chromosome separate and move apart towards opposite poles.
(iii) In the somatic cells of the body.
(iv) Metaphase



- (b) (i) Absorption by roots and transpiration by leaves
 (ii) It is the process by which plants lose water as vapours through the aerial parts.
 (iii) To prevent direct evaporation of water from the test tube.
 (iv) (1) In bright sunlight, the level of water decreases quickly.
 (2) In humid conditions, level of water does not decrease for a long time.
 (3) On windy day, level of water decreases very quickly.
 (v) 1. The number of stomata may be reduced.
 2. Leaves may become narrow.
 3. A thick layer of cuticle on the leaf surface helps to decrease transpiration.

Answer 7.

(a) (i)

| | |
|--|------------------------------|
| (1) Increases heart beat. | Return heart beat to normal. |
| (2) Dilates. | Constricts. |
| (3) Secretion of the salivary gland decreases. | Increases. |

(b)

| (ii) | Erythrocytes | Leucocytes |
|-------|---|--|
| | Carry oxygen from lungs to all body tissues. | Defend the body from germs by destroying them. |
| (iii) | Guttation | Bleeding |
| | Caused due to high hydrostatic pressure in the plant body and warm, humid conditions around it. | Due to some injury to plant. |
| (iv) | NADP | AIDS |
| | Nicotinamide Adenine Dinucleotide Phosphate | Acquired Immune Deficiency Syndrome. |
| (v) | Monohybrid | Dihybrid cross |
| | 3 : 1 | 9 : 3 : 3 : 1 |

GURUKUL

COMPUTER APPLICATIONS

2020

QUESTIONS

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

This paper is divided into two Sections.

Attempt **all** questions from **Section A** and **any four** questions from **Section B**.

The intended marks for questions or parts of questions are given in brackets [].

SECTION-A (40 Marks)

Attempt **all** questions

Question 1.

- (a) Define Java byte code. [2]
- (b) Write a difference between class and an object. [2]
- (c) Name the following: [2]
 - (i) The keyword which converts variable into constant.
 - (ii) The method which terminates the entire program from any stage.
- (d) Which of the following are primitive data types? [2]
 - (i) double (ii) String
 - (iii) Char (iv) Integer
- (e) What is an operator? Name any two types of operators used in Java. [2]

Question 2.

- (a) What is autoboxing in Java? Give an example. [2]
- (b) State the difference between length and length() in Java. [2]
- (c) What is constructor overloading? [2]
- (d) What is the use of import statement in Java? [2]
- (e) What is an infinite loop? Give an example. [2]

Question 3.

- (a) Write a Java expression for the following: [2]
$$\sqrt{b^2 - 4ac}$$
- (b) Evaluate the following if the value of $x = 7$, $y = 5$ [2]
$$x += x++ + x++ + y$$
- (c) Write the output for the following: [2]

```
String s1 = "Life is Beautiful";
System.out.println ("Earth" + s1.substring(4));
System.out.println( s1.endsWith("L") );
```

- (d) Write the output of the following statement: [2]

```
System.out.println("A picture is worth \t \"A thousand words.\"");
```
- (e) Give the output of the following program segment and mention how many times the loop will execute: [2]

```
int k;
for ( k = 5 ; k <= 20; k + = 7 )
if ( k% 6==0 )
continue;
System.out.println ( k );
```
- (f) What is the data type returned by the following library methods? [2]
 - (i) isWhitespace()
 - (ii) compareToIgnoreCase()
- (g) Rewrite the following program segment using logical operators: [2]

```
if ( x > 5 )
if ( x > y )
System.out.println (x+y);
```
- (h) Convert the following **if else if** construct into **switch case**: [2]

```
if (ch== 'c' || ch=='C')
System.out.print("COMPUTER");
else if (ch== 'h' || ch=='H')
System.out.print("HINDI");
else
System.out.print("PHYSICAL EDUCATION");
```
- (i) Give the output of the following: [2]
 - (i) Math.pow (36,0.5) + Math.cbrt (125)
 - (ii) Math.ceil (4.2) + Math.floor (7.9)
- (j) Rewrite the following using ternary operator: [2]

```
if(n1>n2)
r = true;
else
r = false;
```

SECTION-B (60 Marks)

Attempt **any four** questions from this Section.

The answers in this Section should consist of the

Programs in either

Blue J environment or any program environment with Java as the base.

Each program should be written using

Variable descriptions/Mnemonic Codes

so that the logic of the program is clearly depicted.

Flow-Charts and Algorithms **are not required**.

Question 4.

A private Cab service company provides service within the city at the following rates: [15]

| | AC CAR | NON AC CAR |
|-------------|---------------|---------------|
| Up to 5 Km | ₹150/- | ₹120/- |
| Beyond 5 Km | ₹ 10/- Per Km | ₹ 08/- Per Km |

Design a class **CabService** with the following description:

Member variables /data members:

String Car-type : To store the type of car (AC or NON AC)
 double km : To store the kilometer travelled
 double bill : To calculate and store the bill amount

Member methods :

CabService() – Default constructor to initialize data members.
 String data members to "" and double data members to 0.0.
 void accept() – To accept car_type and km (using Scanner class only).
 void calculate() – To calculate the bill as per the rules given above.
 void display() – To display the bill as per the following format
 CAR TYPE:
 KILOMETER TRAVELLED:
 TOTAL BILL:

Create an object of the class in the main method and invoke the member methods.

Question 5.

Write a program to search for an integer value input by the user in the sorted list given below using **binary** search technique. If found display "Search Successful" and print the element, otherwise display "Search Unsuccessful" [15]

{31, 36, 45, 50, 60, 75, 86, 90}

Question 6.

Write a program to input a **sentence** and convert it into uppercase and display each word in a separate line. [15]

Example: Input : India is my country

Output : INDIA

IS

MY

COUNTRY

Question 7.

Design a class to overload a method number() as follows: [15]

- (i) void Number (int num, – To count and display the frequency of a digit in a number.)
 int d)

Example:

num = 2565685

d = 5

Frequency of digit 5 = 3

- (ii) void Number – To find and display the sum of even digits of a number.
 (int n1)

Example:

n1 = 29865

Sum of even digits = 16

Write a main method to create an object and invoke the above methods.

Question 8.

Write a menu driven program to perform the following operations as per user's choice: [15]

- (i) To print the value of $c = a^2 + 2ab$, where **a** varies from 1.0 to 20.0 with increment of 2.0 and **b** = 3.0 is a constant.
 (ii) To display the following pattern using **for** loop:

A
 AB
 ABC
 ABCD
 ABCDE

Display proper message for an invalid choice.

Question 9.

Write a program to input and store integer elements in a double dimensional array of size 3×3 and find the **sum** of elements in the left diagonal. [15]

Example :

| | | |
|---|---|---|
| 1 | 3 | 5 |
| 4 | 6 | 8 |
| 9 | 2 | 4 |

Output: Sum of the left diagonal elements = (1 + 6 + 4) = 11

ANSWERS**SECTION-A****Answer 1.**

- (a) It is a machine instruction for java processor chip called JVM.

- (b) Class is a set of objects that shares common characteristics and behaviour whereas object is an instance of a class.

- (c) (i) final
 (ii) System.exit(0)

(d) (i) double, char are primitive datatypes.

(e) Operator is a symbol which specifies the type of operation to be performed on the operands.

Ex: Arithmetic Operator (+, -, *, /, %) or Relational operator(>, <, >=, <=, ==, !=) etc.

Answer 2.

(a) Converting primitive types to corresponding wrapper class object is called Autoboxing.

For eg: int to Integer, double to Double type etc.

(b) Length is a variable used with arrays to find its size whereas length() is a function used with Strings to determine the no. of characters present in it.

If arr[] = {1,2,3,4,5} then arr.length will return 5.

If s="JAVA" the s.length() will return 4.

(c) Defining more than one constructors having same name but different signature is called constructor overloading.

class Overload

```
{
    String s;
    public Overload()
    {
        s="DPC Jhansi";
    }
    public Overload( String s1)
    {
        s=s1;
    }
}
```

(d) Import keyword is used to include predefined classes and functions in our program which are available in java.

import java.util.*; will include all the classes of util package in our program.

(e) Non terminating loop whose test condition is always true is called infinite loop.

for(i=1 ; i > 0 ; i++)

```
{
    System.out.println("This is Infinite Loop");
}
```

Answer 3.

(a) Math.sqrt(b*b - 4*a*c)

(b) x = 28, y = 6

(c) Earth is Beautiful
false

(d) A picture is worth "A thousand words."

(e) Loop will execute 3 times output 19.

(f) (i) boolean

(ii) int

(g) if(x > 5 && x > y)

System.out.println(x + y);

(h) switch(ch)

```
{
    case 'c' :
    case 'C' : System.out.print( " COMPUTER " );
        break;
    case 'h' :
    case 'H' : System.out.print( " HINDI " );
        break;
    default: System.out.print
        ("PHYSICAL EDUCATION" );
}
```

(i) (i) 6.0 + 5.0 = 11.0

(ii) 5.0 + 7.0 = 12.0

(j) r = n1 > n2 ? true : false ;

SECTION-B

Answer 4.

```
import java.util.*;
class CabServices
{
    String car_type;
    double km,bill;
    public CabServices()
    {
        car_type="";
        km=bill=0.0;
    }
    void accept()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Car Type and
        no. of Km");
        car_type=sc.nextLine();
        km=sc.nextDouble();
    }
    void calculate()
    {
        if(car_type.equalsIgnoreCase("AC"))
        {
            if(km<=5)
            {
                bill=150;
            }
            else
            {
                bill=150 + (km - 5) * 10;
            }
        }
    }
}
```



```

    }
    }
    else if(car_type.equalsIgnoreCase("NON
                                   AC"))
    {
        if(km<=5)
        {
            bill=120
        }
        else
        {
            bill=120 + (Km - 5) * 8;
        }
    }
    else
    {
        System.out.println("Wrong Type");
    }
}
void display()
{
    System.out.println("CAR TYPE :
                      " + car_type);
    System.out.println("KILOMETER
                      TRAVELLED : " + km);
    System.out.println("TOTAL BILL :
                      " + bill);
}
}

```

Answer 5.

```

import java.util.*;
class Search
{
    int A[]={31,36,45,50,60,75,86,90};
    int n,low,high,mid,flag=0;
    void display()
    {
        low=0;
        high=A.length-1;
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter a no.");
        n=sc.nextInt();
        while(low<=high)
        {
            mid=(low+high)/2;
            if(n>A[mid])
            {
                low=mid+1;
            }
            else if(n<A[mid])

```

```

        {
            high=mid-1;
        }
        else
        {
            flag=1;
            break;
        }
    }
    if(flag==1)
    {
        System.out.println("Search
                          Successful"+n+"Found");
    }
    else
    {
        System.out.println("Search
                          Unsuccessful ");
    }
}
}

```

Answer 6.

```

import java.util.*;
class Sentence
{
    String s,w;
    int i,l;
    public Sentence()
    {
        s="Destination Point Computers";
    }
    void display()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter a Sentence");
        s=sc.nextLine();
        s=s.toUpperCase();
        s=s+" ";
        l=s.length();
        for(i=0;i<l;i++)
        {
            w="";
            while(s.charAt(i)!=' ')
            {
                w=w+s.charAt(i);
                i++;
            }
            System.out.println(w);
        }
    }
}

```

Answer 7.

```

class Overload
{
    void Number(int num,int d)
    {
        int c=0,d1;
        while(num>0)
        {
            d1=num%10;
            if(d1==d)
            {
                c++;
            }
            num=num/10;
        }
        System.out.println("Frequency of digit " + d
            + " = " + c);
    }
    void Number(int n1)
    {
        int d,s=0;
        while(n1>0)
        {
            d=n1%10;
            if(d%2==0)
            {
                s=s+d;
            }
            n1=n1/10;
        }
        System.out.println("Sum of Even Digits = " + s);
    }
}

```

Answer 8.

```

import java.util.*;
class Menu
{
    int ch;
    double a,b=3.0,c;
    char i,j;
    void display()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("1. Value of c");
        System.out.println("2. Pattern");
        System.out.println("Enter Your Choice");
        ch=sc.nextInt();
        if(ch==1)
        {
            for(a=1.0;a<=20.0;a=a+2)
            {
                c=a*a + 2*a*b;
            }
        }
    }
}

```

```

        System.out.println(c);
    }
    else if(ch==2)
    {
        for(i='A';i<='E';i++)
        {
            for(j='A';j<=i;j++)
            {
                System.out.print(j);
            }
            System.out.println();
        }
    }
    else
    {
        System.out.println("Wrong Choice");
    }
}

```

Answer 9.

```

import java.util.*;
class Matrix
{
    int A[][]=new int[3][3];
    int i,j,s=0;
    void display()
    {
        Scanner sc=new Scanner(System.in);
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
            {
                System.out.println("Enter a no.");
                A[i][j]=sc.nextInt();
            }
        }
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
            {
                if(i == j)
                {
                    s=s + A[i][j];
                }
            }
        }
        System.out.println("Sum of the left diagonal
            elements = " + s);
    }
}

```

QUESTIONS

SECTION-A (40 Marks)

Attempt **all** questions

Question 1.

- (a) Name any two basic principles of Object-oriented Programming. [2]
- (b) Write a difference between **unary** and **binary** operator. [2]
- (c) Name the keyword which : [2]
 - (i) indicates that a method has no return type.
 - (ii) makes the variable as a class variable.
- (d) Write the memory capacity (storage size) of **short** and **float** data type in bytes. [2]
- (e) Identify and name the following tokens : [2]
 - (i) `public` (ii) `'a'`
 - (iii) `==` (iv) `{ }`

Question 2.

- (a) Differentiate between **if else if** and **switch-case** statements. [2]
- (b) Give the output of the following code : [2]

```
String P = "20", Q = "19";
int a = Integer.parseInt(P);
int b = Integer.valueOf(Q);
System.out.println(a+" "+b);
```
- (c) What are the various types of errors in Java ? [2]
- (d) State the data type and value of **res** after the following is executed : [2]

```
char ch = '9';
res = Character.isDigit(ch);
```
- (e) What is the difference between the **linear** search and the **binary** search technique ? [2]

Question 3.

- (a) Write a Java expression for the following : [2]
 $|x^2 + 2xy|$
- (b) Write the return data type of the following functions : [2]
 - (i) `startsWith()`
 - (ii) `random()`
- (c) If the value of **basic** = 1500, what will be the value of **tax** after the following statement is executed ? [2]
`tax = basic > 1200 ? 200 : 100;`

- (d) Give the output of the following code and mention how many times the loop will execute ? [2]

```
int i;
for(i = 5; i >= 1; i--)
{
    if(i%2 == 1)
        continue;
    System.out.print(i+" ");
}
```

- (e) State a difference between call by value and call by reference. [2]
- (f) Give the output of the following : [2]
`Math.sqrt(Math.max(9, 16))`
- (g) Write the output for the following : [2]
`String s1 = "phoenix"; String s2 = "island";`
`System.out.println(s1.substring(0).concat`
`(s2.substring(2)));`
`System.out.println(s2.toUpperCase());`
- (h) Evaluate the following expression if the value of $x = 2$, $y = 3$ and $z = 1$. [2]
 $v = x + --z + y++ + y$
- (i) `String x[] = {"Artificial intelligence", "IOT", "Machine learning", "Big data"};`
Give the output of the following statements : [2]
 - (i) `System.out.println(x[3]);`
 - (ii) `System.out.println(x.length);`
- (j) What is meant by a package ? Give an example. [2]

SECTION-B (60 Marks)

Attempt **any four** questions from this Section.
The answers in this Section should consist of the
Programs in either

Blue J environment or any program environment with Java as the base.

Each program should be written using
Variable descriptions/Mnemonic Codes
so that the logic of the program is clearly depicted.
Flow-Charts and Algorithms are not required.

Question 4.

Design a class name **ShowRoom** with the following description : [15]

Instance variables/Data members :

String name : To store the name of the customer
 long mobno : To store the mobile number of the customer
 double cost : To store the cost of the items purchased.
 double dis : To store the discount amount
 double amount : To store the amount to be paid after discount.

Member methods :

ShowRoom() – default constructor to initialize data members
 void input() – To input customer name, mobile number, cost
 void calculate() – To calculate **discount** on the **cost** of purchased items, based on the following criteria :

| Cost | Discount (in percentage) |
|---|--------------------------|
| Less than or equal to ₹ 10,000 | 5% |
| More than ₹ 10,000 and less than or equal to ₹ 20,000 | 10% |
| More than ₹ 20,000 and less than or equal to ₹ 35,000 | 15% |
| More than ₹ 35,000 | 20% |

void display() – To display customer name, mobile number, amount to be paid after discount.

Write a main method to create an object of the class and call the above member methods.

Question 5.

Using the **switch-case** statement, write a menu driven program to do the following : [15]

(a) To **generate** and print Letters from A to Z and their Unicode.

| Letters | Unicode |
|---------|---------|
| A | 65 |
| B | 66 |
| . | . |
| . | . |
| . | . |
| Z | 90 |

(b) Display the following pattern using **iteration** (looping) statement :

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Question 6.

Write a program to input **15** integer elements in an array and sort them in **ascending** order using the **bubble sort** technique. [15]

Question 7.

Design a class to overload a function **series()** as follows : [15]

(a) void series(int x, int n) – To display the sum of the series given below :

$$x^1 + x^2 + x^3 + \dots x^n \text{ terms}$$

(b) void series(int p) – To display the following series :

$$0, 7, 26, 63 \dots p \text{ terms}$$

(c) void series() – To display the sum of the series given below :

$$\frac{1}{2} + \frac{1}{3} + \frac{1}{4} \dots \frac{1}{10}$$

Question 8.

Write a program to input a **sentence** and convert it into uppercase and count and display the total number of words starting with a letter 'A'. [15]

Example :

Sample Input : ADVANCEMENT AND APPLICATION OF INFORMATION TECHNOLOGY ARE EVER CHANGING.

Sample Output : Total number of words starting with letter 'A' = 4.

Question 9.

A **tech number** has even number of digits. If the number is split in two equal halves, then the square of sum of these halves is equal to the number itself. Write a program to generate and print all four digit tech numbers. [15]

Example :

Consider the number 3025

Square of sum of the halves of 3025

$$= (30 + 25)^2$$

$$= (55)^2$$

$$= 3025 \text{ is a tech number.}$$

ANSWERS

SECTION-A

Answer 1.

(a) Encapsulation and Abstraction.

(b)

| Unary Operator | Binary Operator |
|---|---|
| 1. The operator that acts on a single operand is called a unary operator. | The operator that acts on two operands is called a binary operator. |
| 2. E.g., ++, -- | E.g., +, -, *, / |

(c) (i) void

(ii) static

(d) short requires 16 bits or two(2) bytes of storage whereas float requires 32 bits or four(4) bytes of storage.

(e) (i) public — Keyword.

(ii) 'a' — Character Literal.

(iii) == — Operator.

(iv) { } — Separator.

Answer 2.

(a)

| if else if | switch case |
|---|---|
| 1. It can work with all relational operators. | It can only test for equality. |
| 2. It can work with any data type. | It can only work with byte, short, char and int primitive data types. |

(b) 2019

(c) Compile time errors, Runtime errors and Logical errors.

(d) Data type of res is boolean and its value is true.

(e)

| Linear Search | Binary Search |
|--|--------------------------------------|
| 1. It can work with both sorted and unsorted arrays. | It can only work with sorted arrays. |
| 2. It takes more number of comparisons. | It takes less number of comparisons |

Answer 3.

(a) Math.abs(x * x + 2 * x * y)

(b) (i) boolean (ii) double

(c) 200

(d) 4 2

The loop will get executed 5 times.

(e)

| Call By Value | Call By Reference |
|--|--|
| 1. In this, local copy of parameters are created and whatever changes are made inside the function get reflected in the local copies while the original copy remains unaffected. | In this, no local copy of parameters are created therefore whatever changes are made inside the function get reflected in the original copies. |
| 2. In this primitive data types are passed. | In this non-primitive data types are passed. |

(f) 4.0

(g) phoenixland
ISLAND

(h) 9

(i) (i) Big Data
(ii) 4

(j) A package is a collection of inter-related classes and interfaces having common functionality. e.g., java.io, java.util, java.lang, etc.

SECTION-B

Answer 4.

```

import java.util.*;
class ShowRoom
{
    String name;
    long mobno;
    double cost, dis, amount;
    public ShowRoom()
    {
        name = "";
        mobno = 0L;
        cost = 0.0;
        dis = 0.0;
        amount = 0.0;
    }
    void input()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the details");
        name = sc.nextLine();
    }
}

```

```

        mobno = sc.nextLong();
        cost = sc.nextDouble();
    }
    void calculate()
    {
        if(cost <= 10000)
        {
            dis = 0.05 * cost;
        }
        else if(cost > 10000 && cost <= 20000)
        {
            dis = 0.10 * cost;
        }
        else if(cost > 20000 && cost <= 35000)
        {
            dis = 0.15 * cost;
        }
        else
        {
            dis = 0.20 * cost;
        }
        amount = cost - dis;
    }
    void display()
    {
        System.out.println("Customer Name : "
            + name);
        System.out.println("Customer Mobile
            Number : " + mobno);
        System.out.println("Amount to be Paid : "
            + amount);
    }
    public static void main(String args[])
    {
        ShowRoom ob = new ShowRoom();
        ob.input();
        ob.calculate();
        ob.display();
    }
}

```

| Name | Type | Description |
|-------|--------|---|
| name | String | To store the name of the customer. |
| mobno | long | To store the mobile number of the customer. |

| | | |
|--------|--------|--|
| cost | double | To store the cost of the item purchased. |
| dis | double | To store the discount on the item purchased. |
| amount | double | To store the final amount to be paid. |

Answer 5.

```

import java.util.*;
class Menu
{
    int ch, i, j;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("1. Letters");
        System.out.println("2. Pattern");
        System.out.println("Enter Your Choice");
        ch = sc.nextInt();
        switch(ch)
        {
            case 1 : System.out.println
                ("Letters \t Unicode");
                for(i = 65; i <= 90; i++)
                {
                    System.out.println
                        ((char)i + "\t" + i);
                }
                break;
            case 2 : for(i = 1; i <= 5; i++)
                {
                    for(j = 1; j <= i; j++)
                    {
                        System.out.print
                            (j + " ");
                    }
                    System.out.println();
                }
                break;
            default: System.out.println
                ("Wrong Choice");
        }
    }
}

```

| Name | Type | Description |
|------|------|----------------------|
| Ch | int | To store the choice. |
| i, j | int | for loop variables. |

Answer 6.

```

import java.util.*;
class Bsort
{
    int A[] = new int[15];
    int i, j, t;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        for(i = 0; i < 15; i++)
        {
            System.out.println("Enter a number");
            A[i] = sc.nextInt();
        }
        for(i = 0; i < 15; i++)
        {
            for(j = 0; j < 14 - i; j++)
            {
                if(A[j] > A[j + 1])
                {
                    t = A[j];
                    A[j] = A[j + 1];
                    A[j + 1] = t;
                }
            }
        }
        for(i = 0; i < 15; i++)
        {
            System.out.println(A[i]);
        }
    }
}

```

| Name | Type | Description |
|------|------|--|
| A[] | int | Array to store 15 numbers. |
| i, j | int | for loop variables. |
| t | int | Temporary variable to store value to swap. |

Answer 7.

```

class Overload
{
    double s = 0;
    int i;
    void series(int x, int n)
    {
        for(i = 1; i <= n; i++)
        {
            s = s + Math.pow(x, i);
        }
    }
}

```

```

System.out.println("Sum of the
series is" + s);

```

```

}
void series(int p)
{
    for(i = 1; i <= p; i++)
    {
        System.out.print((i * i * i) - 1 + " ");
    }
}
void series()
{
    for(i = 2; i <= 10; i++)
    {
        s = s + 1.0/i;
    }
    System.out.println("Sum of the
series is" + s);
}

```

| Name | Type | Description |
|---------|--------|-----------------------------------|
| i | int | for loop variable. |
| s | double | To store the sum of the series. |
| x, n, p | int | To store the terms of the series. |

Answer 8.

```

import java.util.*;
class Count
{
    String s;
    int l, i, c = 0;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a sentence");
        s = sc.nextLine();
        s = s.toUpperCase();
        s = " " + s;
        l = s.length();
        for(i = 0; i < l; i++)
        {
            if(s.charAt(i) == ' ' && s.charAt(i + 1) == 'A')
            {
                c++;
            }
        }
    }
}

```

```

        System.out.println("Total number of
            words starting with letter A = " + c);
    }
}

```

| Name | Type | Description |
|------|--------|----------------------|
| s | String | To store a sentence. |
| l | int | To store the length. |
| i | int | for loop variable. |
| c | int | Counter variable. |

```

a = i % 100;
b = i/100;
s = a + b;
if(s * s == i)
{
    System.out.println(i);
}
}
}

```

Answer 9.

```

class Tech
{
    int i, a, b, s;
    void display()
    {
        for(i = 1000; i <= 9999; i++)
        {

```

| Name | Type | Description |
|------|------|--------------------------------|
| a | int | To store the last two digits. |
| b | int | To store the first two digits. |
| s | int | To store the sum. |
| i | int | for loop variable. |

..

GURUKUL

QUESTIONS

SECTION-A (40 Marks)

Attempt **all** questions.

Question 1.

- (a) Define abstraction. [2]
- (b) Differentiate between searching and sorting. [2]
- (c) Write a difference between the functions is Upper Case() and toUpperCase(). [2]
- (d) How are private members of a class different from public members ? [2]
- (e) Classify the following as primitive or non-primitive datatypes : [2]
 - (i) char (ii) arrays
 - (iii) int (iv) classes

Question 2.

- (a) (i) `int res = 'A';`
What is the value of `res` ? [2]
(ii) Name the package that contains wrapper classes. [2]
- (b) State the difference between **while** and **do while** loop. [2]
- (c) `System.out.print("BEST");`
`System.out.println("OF LUCK");`
Choose the correct option for the output of the above statements [2]
 - (i) BEST OF LUCK
 - (ii) BEST OF LUCK
- (d) Write the prototype of a function **check** which takes an integer as an argument and returns a character. [2]
- (e) Write the return data type of the following function: [2]
 - (i) `endsWith()`
 - (ii) `log()`

Question 3.

- (a) Write a Java expression for the following : [2]

$$\frac{\sqrt{3x + x^2}}{a + b}$$
- (b) What is the value of **y** after evaluating the expression given below ? [2]

`y += ++y + y-- + --y;` when `int y = 8`

- (c) Give the output of the following : [2]
 - (i) `Math.floor(-4.7)`
 - (ii) `Math.ceil(3.4) + Math.pow(2, 3)`
- (d) Write two characteristics of a constructor. [2]
- (e) Write the output for the following : [2]


```
System.out.println("Incredible" + "\n" + "world");
```
- (f) Convert the following **if else if** construct into **switch case** [2]


```
if(var == 1)
    System.out.println("good");
else if(var == 2)
    System.out.println("better");
elseif(var == 3)
    System.out.println("best");
else
    System.out.println("invalid");
```
- (g) Give the output of the following string functions : [2]
 - (i) `"ACHIEVEMENT".replace('E', 'A')`
 - (ii) `"DEDICATE".compareTo("DEVOTE")`
- (h) Consider the following String array and give the output : [2]


```
String arr[] = {"DELHI", "CHENNAI", "MUMBAI", "LUCKNOW", "JAIPUR"};
System.out.println(arr[0].length() > arr[3].length());
System.out.print(arr[4].substring(0, 3));
```
- (i) Rewrite the following using ternary operator : [2]


```
if(bill > 1000)
    discount = bill * 10.0/100;
else
    discount = bill * 5.0/100;
```
- (j) Give the output of the following program segment and also mention how many times the loop is executed : [2]


```
int i;
for(i = 5; i > 10; i++)
    System.out.println(i);
System.out.println(i * 4);
```

SECTION-B (60 Marks)

Attempt **any four** questions from this Section.
The answers in this Section should consist of the

Programs in either

Blue J environment or any program environment with Java as the base.

Each program should be written using

Variable descriptions/Mnemonic Codes

so that the logic of the program is clearly depicted.

Flow-Charts and Algorithms **are not required**.

Question 4.

Design a class **RailwayTicket** with following description :

Instance variables/data members :

- String name** : To store the name of the customer
- String coach** : To store the type of coach customer wants to travel
- long mobno** : To store customer's mobile number
- int amt** : To store basic amount of ticket
- int totalamt** : To store the amount to be paid after updating the original amount

Member methods :

- void accept()** – To take input for name, coach, mobile number and amount.
- void update()** – To update the amount as per the coach selected (extra amount to be added in the amount as follows)

| Type of Coaches | Amount |
|-----------------|--------|
| First_AC | 700 |
| Second_AC | 500 |
| Third_AC | 250 |
| Sleeper | None |

- void display()** – To display all details of a customer such as name, coach, total amount and mobile number.

Write a main method to create an object of the class and call the above member methods.

Question 5.

Write a program to input a number and check and print whether it is a **Pronic** number or not. (Pronic number is the number which is the product of two consecutive integers)

[15]

Example :

$$12 = 3 \times 4$$

$$20 = 4 \times 5$$

$$42 = 6 \times 7$$

Question 6.

Write a program in Java to accept a string in lower case and change the first letter of every word to upper case. Display the new string.

Sample input : we are in cyber world.

Sample output : We Are In Cyber World.

[15]

Question 7.

Design a class to overload a function volume () as follows :

[15]

- (i) double volume (double R) – with radius (R) as an argument, returns the volume of sphere using the formula.

$$V = \frac{4}{3} \times \frac{22}{7} \times R^3$$

- (ii) double volume(double H, double R) – with height(H) and radius(R) as the arguments, returns the volume of a cylinder using the formula.

$$V = \frac{22}{7} \times R^2 \times H$$

- (iii) double volume(double L, double B, double H) – with length(L), breadth(B) and Height(H) as the arguments, returns the volume of a cuboid using the formula.

$$V = L \times B \times H$$

Question 8.

Write a menu driven program to display the pattern as per user's choice.

[15]

Pattern 1

ABCDE

ABCD

ABC

AB

A

Pattern 2

B

LL

UUU

EEEE

For an incorrect option, an appropriate error message should be displayed.

Question 9.

Write a program to accept name and total marks of N number of students in two single subscript array **name[]** and **totalmarks[]**.

[15]

Calculate and print :

- (i) The average of the total marks obtained by N number of students.

$$[\text{average} = (\text{sum of total marks of all the students})/N]$$

- (ii) Deviation of each student's total marks with the average.

$$[\text{deviation} = \text{total marks of a student} - \text{average}]$$

ANSWERS

SECTION-A

Answer 1.

- (a) Abstraction refers to the act of representing essential features without including the background details. For example switchboard. We only press certain switches according to our requirement without knowing what is happening inside and how it is happening.

(b)

| Searching | Sorting |
|--|--|
| 1. It is the process of checking whether the element is present in the array or not. | It is the process of arranging the data in ascending or descending order in the array. |
| 2. Examples of searching techniques are linear and binary search. | Examples of sorting techniques are Selection sort, bubble sort, etc. |

(c)

| isUpperCase() | toUpperCase() |
|---|---|
| 1. This function is used to check whether a character is in upper case. | This function is used to convert a character to upper case. |
| 2. Return type is boolean. | Return type is char. |

- (d) 1. Private members of a class are the most restricted members of a class whereas public members of a class are the least restricted members of a class.
2. Private members are accessible in their own class whereas public members are accessible in all parts of a java program.

- (e) primitive : (i) char, (iii) int
non-primitive : (ii) arrays, (iv) classes

Answer 2.

- (a) (i) res = 65 (ii) java.lang

(b)

| while | do while |
|---|---|
| 1. The loop does not execute if the condition is false. | The loop executes at least once even if the condition is false. |
| 2. It is an entry controlled loop. | It is an exit controlled loop. |
| 3. Minimum repetition is 0. | Minimum repetition is 1. |

- (c) (i) BEST OF LUCK is the correct option.

- (d) char check(int n)

- (e) (i) boolean (ii) double

Answer 3.

- (a) $\text{Math.sqrt}((3 * x) + (x * x)) / (a + b);$

- (b) 33

- (c) (i) - 5.0 (ii) 12.0

- (d) 1. Constructors have the same name as that of the class.

2. They do not have any return type not even void.

- (e) Incredible world

- (f) switch(var)

```
{
    case 1: System.out.println("good");
            break;
    case 2: System.out.println("better");
            break;
    case 3: System.out.println("best");
            break;
    default : System.out.println("invalid");
}
```

- (g) (i) ACHIAVAMANT

- (ii) - 18

- (h) false

JAI

- (i) $\text{discount} = \text{bill} > 10000 ? (\text{bill} * 10.0 / 100) : (\text{bill} * 5.0 / 100);$

- (j) Loop will be executed 0 times since the test condition is initially false.

Output will be : 20.

SECTION-B

Answer 4.

```
import java.util.*; // importing package
class RailwayTicket
{
```

```
    String name, coach;
```

```
    long mobno;
```

```
    int amt, totalamt;
```

```
    void accept()
    {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("Enter the Details");
```

```
        name = sc.nextLine();
```

```
        coach = sc.nextLine();
```

```
        mobno = sc.nextLong();
```

```

    amt = sc.nextInt();
}
void update()
{
    if(coach.equalsIgnoreCase ("First_AC"))
    {
        totalamt = amt + 700;
    }
    else if(coach.equalsIgnoreCase
            ("Second_AC"))
    {
        totalamt = amt + 500;
    }
    else if(coach.equalsIgnoreCase
            ("Third_AC"))
    {
        totalamt = amt + 250;
    }
    else
    {
        totalamt = amt;
    }
}
void display()
{
    System.out.println("Name : " + name);
    System.out.println("Coach : " + coach);
    System.out.println("Mobile no. : "
        + mobno);
    System.out.println("Amt : " + amt);
    System.out.println("Total Amt : "
        + totalamt);
}
public static void main(String args[])
{
    RailwayTicket ob = new RailwayTicket();
    ob.accept();// function call
    ob.update();
    ob.display();
}
}

```

| Name | Type | Description |
|---------------|--------|------------------------------------|
| name | String | To store the name of the customer. |
| coach | String | To store name of coach. |
| mobno | long | To store customer's mobile number. |
| amt, totalamt | int | To store amount and total amount. |

Answer 5.

```

import java.util.*; //importing package
class Pronic
{
    int n, i = 1, p = 0;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number");
        n = sc.nextInt();
        int flag = 0;
        for(i = 0; i < n; i++)
        {
            if(i * (i + 1) == n)
            {
                flag = 1;
                break;
            }
        }
        if(flag == 1)
            System.out.println("It is a pronic
                                number");
        else
            System.out.println("It is not a pronic
                                number");
    }
}

```

| Name | Type | Description |
|------|------|--------------------|
| n | int | To store a number. |
| i | int | Loop variable. |
| p | int | To store product. |
| flag | int | Flag variable. |

Answer 6.

```

import java.util.*; //importing package
class Demo
{
    String s,w;
    char ch;
    int i, l;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a Sentence");
        s = sc.nextLine();
        s = s + " ";
        l = s.length();
        for(i = 0; i < l; i++)
        {

```



```

w = "";
while(s.charAt(i) != ' ')
{
    w = w + s.charAt(i);
    i++;
} //while loop ending
ch = w.charAt(0);
ch -= 32;
w = ch + w.substring(1);
System.out.print(w + " ");
}
}

```

| Name | Type | Description |
|------|--------|----------------------------|
| s | String | To store a string. |
| w | String | To store a word. |
| ch | char | To store a character. |
| i | int | For loop variable. |
| l | int | To store length of string. |

Answer 7.

```

class Overload
{ // class beginning
    double V;
    double volume(double R)
    {
        V = (4.0/3) * (22/7) * (R * R * R);
        return(V);
    }
    double volume(double H, double R)
    {
        V = (22/7) * (R * R) * H;
        return(V);
    }
    double volume(double L, double B, double H)
    {
        V = L * B * H;
        return(V); //returning the value of V
    }
}

```

| Name | Type | Description |
|------|--------|-------------------|
| V | double | To store volume. |
| R | double | To store radius. |
| H | double | To store height. |
| L | double | To store length. |
| B | double | To store breadth. |

Answer 8.

```

import java.util.*;
class series
{
    public static void main(String arg[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("1 for Pattern 1 and
                                2 for Pattern 2");
        System.out.println("enter the choice");
        int ch = sc.nextInt();
        switch(ch)
        {
            case 1 : String s = "ABCDE";
                     for(int i = s.length(); i > 0; i--)
                     {
                         System.out.println
                             (s.substring(0, i));
                     }
                     break;
            case 2 : String s1 = "BLUE";
                     for(int i = 0; i < s1.length(); i++)
                     {
                         for(int j = 0; j <= i; j++)
                         {
                             System.out.print
                                 (s1.charAt(i));
                         }
                         System.out.println();
                     }
                     break;
            default : System.out.println("invalid
                                        choice");
        }
    }
}

```

| Name | Type | Description |
|------|--------|----------------------|
| ch | int | To store the choice. |
| i, j | int | For loop variables. |
| s | String | To store the string. |
| s1 | String | To store the string. |

Answer 9.

```

import java.util.*; //importing package
class Student

```

```

{
    int n, i, s = 0;
    double avg, d;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter number
                           of students");

        n = sc.nextInt();
        String name[] = new String[n];
        int totalmarks[] = new int[n];
        for(i = 0; i < n; i++)
        {
            System.out.println("Enter
                               name and total marks");
            name[i] = sc.nextLine();
            totalmarks[i] = sc.nextInt();
            s = s + totalmarks[i];
        }
        avg = (double)s/n;
        System.out.println("Average = "
                           + avg);

        for(i = 0; i < n; i++)
        {
            d = totalmarks[i] - avg;
            System.out.println(name[i]
                               + " Deviation is " + d);
        }
    }
} // class end

```

| Name | Type | Description |
|------|--------|------------------------------|
| n | int | To store number of students. |
| i | int | For loop variable. |
| s | int | To store sum. |
| avg | double | To store average. |
| d | double | To store deviation. |

GURUKUL

QUESTIONS

SECTION-A (40 Marks)

Attempt **all** questions.

Question 1.

- (a) What is inheritance ? [2]
 (b) Name the operators listed below : [2]
 (i) < (ii) ++
 (iii) && (iv) ?:
 (c) State the number of bytes occupied by **char** and **int** data types. [2]
 (d) Write one difference between '/' and '%' operator. [2]
 (e) String x[] = {"SAMSUNG", "NOKIA", "SONY", "MICROMAX", "BLACKBERRY"}; [2]
 Give the output of the following statements :
 (i) System.out.println(x[1]);
 (ii) System.out.println(x[3].length());

Question 2.

- (a) Name the following : [2]
 (i) A keyword used to call a package in the program.
 (ii) Any one reference data type.
 (b) What are the two ways of invoking functions ? [2]
 (c) State the data type and value of **res** after the following is executed : [2]
 char ch = 't';
 res = Character.toUpperCase(ch);
 (d) Give the output of the following program segment and also mention the number of times the loop is executed : [2]

```
int a, b;
for(a = 6, b = 4; a <= 24; a = a + 6)
{
    if(a % b == 0)
        break;
}
System.out.println(a);
```


 (e) Write the output : [2]
 char ch = 'F';
 int m = ch;
 m = m + 5;
 System.out.println(m + " " + ch);

Question 3.

- (a) Write a Java expression for the following : [2]
 $ax^5 + bx^3 + c$

- (b) What is the value of **x1** if **x = 5** ? [2]
 $x1 = ++x - x++ + --x$
 (c) Why is an object called an instance of a class ? [2]
 (d) Convert following **do-while** loop into **for** loop: [2]

```
int i = 1;
int d = 5;
do
{
    d = d * 2;
    System.out.println(d);
    i++;
} while(i <= 5);
```


 (e) Differentiate between constructor and function. [2]
 (f) Write the output for the following : [2]

```
String s = "Today is Test";
System.out.println(s.indexOf('T'));
System.out.println(s.substring(0, 7)
    + " " + "Holiday");
```


 (g) What are the values stored in variables **r1** and **r2** : [2]
 (i) double r1 = Math.abs (Math.min(-2.83, -5.83));
 (ii) double r2 = Math.sqrt (Math.floor(16.3));
 (h) Give the output of the following code : [2]

```
String A = "26", B = "100";
String D = A + B + "200";
int x = Integer.parseInt(A);
int y = Integer.parseInt(B);
int d = x + y;
System.out.println("Result 1 = " + D);
System.out.println("Result 2 = " + d);
```


 (i) Analyze the given program segment and answer the following questions : [2]

```
for(int i = 3; i <= 4; i++)
{
    for(int j = 2; j < i; j++)
    {
        System.out.print(" ");
    }
    System.out.println("WIN");
}
```


 (i) How many times does the inner loop execute ?
 (ii) Write the output of the program segment.

- (j) What is the difference between the Scanner class functions `next()` and `nextLine()` ? [2]

SECTION-B (60 Marks)

Attempt **any four** questions from this Section.

The answers in this Section should consist of the Programs in either

Blue J environment or any program environment with Java as the base.

Each program should be written using **Variable descriptions/Mnemonic Codes** so that the logic of the program is clearly depicted. Flow-Charts and Algorithms **are not required**.

Question 4.

Define a class **ElectricBill** with the following specifications : [15]

Class : **ElectricBill**

Instance variables/data member :

String *n* – to store the name of the customer

int *units* – to store the number of units consumed

double *bill* – to store the amount to be paid

Member methods :

void *accept()* – to accept the name of the customer and number of units consumed

void *calculate()* – to calculate the bill as per the following tariff:

Number of units

Rate per unit

First 100 units ₹ 2.00

Next 200 units ₹ 3.00

Above 300 units ₹ 5.00

A surcharge of 2.5% charged if the number of units consumed is above 300 units.

Void *print()* –

To print the details as follows :

Name of the customer :

Number of units consumed :

Bill amount :

Write a main method to create an object of the class and call the above member methods.

Question 5.

Write a program to accept a number and check and display whether it is a **spy number** or not. (A number is **spy** if the sum of its digits equals the product of its digits.) [15]

Example : consider the number 1124,

Sum of the digits = $1 + 1 + 2 + 4 = 8$

Product of the digits = $1 \times 1 \times 2 \times 4 = 8$

Question 6.

Using switch statement, write a menu driven program for the following : [15]

- (i) To find and display the sum of the series given below :

$$S = x^1 - x^2 + x^3 - x^4 + x^5 - \dots - x^{20}$$

(where $x = 2$)

- (ii) To display the following series :

1 11 111 1111 11111

For an incorrect option, an appropriate error message should be displayed.

Question 7.

Write a program to input integer elements into an array of size 20 and perform the following operations : [15]

- (i) Display largest number from the array.
(ii) Display smallest number from the array.
(iii) Display sum of all the elements of the array.

Question 8.

Design a class to overload a function *check()* as follows : [15]

- (i) void *check(String str, char ch)* – to find and print the frequency of a character in a string.

Example :

| Input | Output |
|------------------------|----------------------------|
| <i>str</i> = "success" | number of s present is = 3 |
| <i>ch</i> = 's' | |

- (ii) void *check(String s1)* – to display only vowels from string *s1*, after converting it to lower case.

Example : Input :

s1 = "computer"

Output : o u e

Question 9.

Write a program to input **forty** words in an array. Arrange these words in descending order of alphabets, using **selection** sort technique. Print the sorted array. [15]

ANSWERS

SECTION-A

Answer 1.

- (a) Inheritance is the ability of an object of one class to acquire the properties of another (parent) class.

- (b) (i) < is a Relational / Comparison operator.
(ii) ++ is an Unary increment operator.
(iii) && is a Logical operator.
(iv) ?: is a Conditional / Ternary operator.

(c) char occupies 2 bytes and int occupies 4 bytes.

(d)

| '/' operator | '%' operator |
|---|--|
| '/' operator returns the quotient of two operands when divided. | % operator returns the remainder of two operands when divided. |

(e) (i) NOKIA

(ii) 8

Answer 2.

(a) (i) import

(ii) class / object

(b) Two ways of invoking functions are :

(i) Call by value

(ii) Call by reference.

(c) Data type of res is char and value of res = 'T'.

(d) 12

The loop will be executed 2 times.

(e) 75 F

Answer 3.(a) $a * \text{Math.pow}(x, 5) + b * \text{Math.pow}(x, 3) + c$.(b) $x1 = 6$

(c) Since an object contains all the necessary information (Data members and member functions) specified inside the class, therefore, it is known as the instance of a class.

(d) `int i, d = 5;``for(i = 1; i <= 5; i++)`

```
{
    d = d * 2;
    System.out.println(d);
}
```

(e)

| Constructor | Function |
|---|---|
| 1. It has the same name as that of the class. | It has a different name as that of the class. |
| 2. It does not has a return type not even void. | It must have a return type. |

(f) 0

Today i Holiday

(g) (i) $r1 = 5.83$ (ii) $r2 = 4.0$

(h) Result 1 = 26100200

Result 2 = 126

(i) (i) Inner loop will be executed 3 times.

(ii) WIN

WIN

(j)

| next() | nextLine() |
|--|--|
| It is used to accept a string input without any space. | It is used to accept a string input with spaces. |

SECTION-B**Answer 4.**

```
import java.util.*; // importing package
class ElectricBill
{
    String n;
    int units;
    double bill;
    void accept()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter Name and units");
        n = sc.nextLine();
        units = sc.nextInt();
    }
    void calculate()
    {
        if(units <= 100)
        {
            bill = units * 2;
        }
        else if(units > 100 && units <= 300)
        {
            bill = 100 * 2 + (units - 100) * 3;
        }
        else
        {
            bill = 100 * 2 + 200 * 3 + (units - 300) * 5;
            if (units > 300)
                bill = bill + 2.5/100 * bill;
        }
    }
    void print()
    {
        System.out.println("Name of the customer : " + n);
        System.out.println("Number of units consumed : " + units);
    }
}
```

```

        System.out.println("Bill amount : " + bill);
    }
    public static void main(String args[])
    {
        ElectricityBill ob = new ElectricBill();
        ob.accept();// function calling
        ob.calculate();
        ob.print();
    }
}

```

| Name | Type | Description |
|------|--------|--|
| n | String | To store the name of the customer. |
| i | int | To store the number of units consumed. |
| p | double | To store the amount to be paid. |

Answer 5.

```

import java.util.*; // importing package
class Spy
{
    int n, d, p = 1, s = 0;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a no.");
        n = sc.nextInt();
        while(n > 0)
        {
            d = n % 10;
            s = s + d;
            p = p * d;
            n = n / 10;
        } // while loop ending
        if(s == p)
        {
            System.out.println("It is a Spy number");
        }
        else
        {
            System.out.println("It is not a Spy number");
        }
    }
}

```

| Name | Type | Description |
|------|------|-----------------------------|
| n | int | To input a number. |
| d | int | To store a digit. |
| p | int | To store product of digits. |
| s | int | To store sum of digits. |

Answer 6.

```

import java.util.*; // importing package
class Menu
{
    int ch, x, i, sign = 1;
    double s = 0;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("1. Sum of series");
        System.out.println("2. Display the series");
        System.out.println("Enter your choice");
        ch = sc.nextInt();
        switch(ch)
        {
            case 1: x = 2;
                    for(i = 1; i <= 20; i++)
                    {
                        s = s + Math.pow(x, i) * sign;
                        sign = sign * -1;
                    }
                    System.out.println(s);
                    break;
            case 2 : x = 0;
                    for(i = 1; i <= 5; i++)
                    {
                        x = x * 10 + 1;
                        System.out.print(x + " ");
                    }
                    break;
            default : System.out.println("Invalid Input");
        } // switch case ending
    }
}

```

| Name | Type | Description |
|------|--------|-----------------------------------|
| ch | int | To enter choice. |
| x | int | Variable of the given expression. |
| i | int | For loop. |
| sign | int | To store sign of the expression. |
| s | double | To store the sum. |

| Name | Type | Description |
|------|------|--|
| A[] | int | Integer array. |
| l | int | To store the largest value. |
| i | int | For loop variable. |
| sum | int | To store sum of all the elements of the array. |
| s | int | To store the smallest value. |

Answer 7.

```

import java.util.*; // importing package
class Array
{
    int A[] = new int[20];
    int i, l, s, sum = 0;
    void display()
    {
        Scanner sc = new Scanner(System.in);
        for(i = 0; i < 20; i++)
        {
            System.out.println("Enter a no.");
            A[i] = sc.nextInt();
        }
        l = s = A[0];
        for(i = 0; i < 20; i++)
        {
            sum = sum + A[i];
            if(A[i] > l)
            {
                l = A[i];
            }
            if(A[i] < s)
            {
                s = A[i];
            }
        }
        System.out.println("Largest element " + l);
        System.out.println("Smallest element "
                                + s);
        System.out.println("Sum of elements " +
                                sum);
    }
} // class ending

```

Answer 8.

```

class Overload
{ // class beginning
    int i;
    void check(String str, char ch)
    {
        int c = 0;
        str = str.toLowerCase();
        for(i = 0; i < str.length(); i++)
        {
            if(ch == str.charAt(i))
            {
                c++;
            }
        }
        System.out.println("number of " +
                                ch + " present is " + c);
    }
    void check(String s1)
    {
        char ch;
        s1 = s1.toLowerCase();
        for(i = 0; i < s1.length(); i++)
        {
            ch = s1.charAt(i);
            if(ch == 'a' || ch == 'e' || ch == 'i'
                || ch == 'o' || ch == 'u')
            {
                System.out.print(ch + " ");
            }
        }
    }
} // class ending

```

| Name | Type | Description |
|------|--------|-------------------------------|
| str | String | To store the given string. |
| c | int | To store the count value. |
| ch | char | To store the given character. |
| i | int | For loop variable. |
| s1 | string | To store a string. |

Answer 9.

```
import java.util.*; // importing package
```

```
class selectSort
```

```
{
```

```
    String A[] = new String[40];
```

```
    int i, j, min;
```

```
    String t;
```

```
    void display()
```

```
{
```

```
        Scanner sc = new Scanner(System.in);
```

```
        for(i = 0; i < 40; i++)
```

```
        {
```

```
            System.out.println("Enter a name");
```

```
            A[i] = sc.next();
```

```
        }
```

```
        for(i = 0; i < 40; i++)
```

```
        {
```

```
            min = i;
```

```
            for(j = i + 1; j < 40; j++)
```

```
            {
```

```
                if(A[i].compareTo(A[j]) < 0)
```

```
                {
```

```
                    min = j;
```

```
                }
```

```
            }
```

```
            t = A[i];
```

```
            A[i] = A[min];
```

```
            A[min] = t;
```

```
        }
```

```
    } for(i = 0; i < 40; i++)
```

```
    {
```

```
        System.out.println(A[i]);
```

```
    }
```

```
    } // class ending
```

| Name | Type | Description |
|------|--------|--|
| A[] | String | To store forty words. |
| i, j | int | Loop variable. |
| t | String | Temporary variable to store a string. |
| min | int | To store index value of smaller string of the array. |

GURUKUL

QUESTIONS

SECTION-A (40 Marks)

Attempt **all** questions.

Question 1.

- (a) Define Encapsulation. [2]
- (b) What are keywords ? Give an example. [2]
- (c) Name any two library packages. [2]
- (d) Name the type of error (syntax, runtime or logical error) in each case given below : [2]
 - (i) `Math.sqrt (36 - 45)`
 - (ii) `int a;b;c;`
- (e) If `int x[] = {4, 3, 7, 8, 9, 10};` what are the values of **p** and **q** ? [2]
 - (i) `p = x.length`
 - (ii) `q = x[2] + x[5] * x[1]`

Question 2.

- (a) State the difference between `==` operator and equals () method. [2]
- (b) What are the types of casting shown by the following examples : [2]
 - (i) `char c = (char)120;`
 - (ii) `int x = 't';`
- (c) Differentiate between formal parameter and actual parameter. [2]
- (d) Write a function prototype of the following : [2]
A function **PosChar** which takes a string argument and a character argument and returns an integer value.
- (e) Name any two types of access specifiers. [2]

Question 3.

- (a) Give the output of the following string functions : [2]
 - (i) `"MISSISSIPPI".indexOf('S') + "MISSISSIPPI".lastIndexOf('I')`
 - (ii) `"CABLE".compareTo("CADET")`
- (b) Give the output of the following math functions : [2]
 - (i) `Math.ceil(4.2)`
 - (ii) `Math.abs(- 4)`
- (c) What is a parameterized constructor ? [2]
- (d) Write down java expression for : [2]
$$T = \sqrt{A^2 + B^2 + C^2}$$

- (e) Rewrite the following using ternary operator : [2]

```
if(x % 2 == 0)
    System.out.print("EVEN");
else
    System.out.print("ODD");
```
- (f) Convert the following while loop to the corresponding for loop : [2]

```
int m = 5, n = 10;
while(n >= 1)
{
    System.out.println(m * n);
    n--;
}
```
- (g) Write one difference between primitive data types and composite data types. [2]
- (h) Analyse the given program segment and answer the following questions : [2]
 - (i) Write the output of the program segment.
 - (ii) How many times does the body of the loop gets executed ?

```
for(int m = 5; m <= 20; m += 5)
{
    if(m % 3 == 0)
        break;
    else if(m % 5 == 0)
        System.out.println(m);
    continue;
}
```
- (i) Give the output of the following expression : [2]
`a+= a++ + ++a + --a + a--;`
when `a = 7`
- (j) Write the return type of the following library functions: [2]
 - (i) `isLetterOrDigit(char)`
 - (ii) `replace(char, char)`

SECTION-B (60 Marks)

Attempt **any four** questions from this Section.

The answers in this Section should consist of the

Programs in either

Blue J environment or any program environment with Java as the base.

Each program should be written using

Variable descriptions/Mnemonic Codes

so that the logic of the program is clearly depicted.

Flow-Charts and Algorithms **are not required**.

Question 4.

Define a class named **BookFair** with the following description : [15]

Instance variables/Data members :

String Bname – stores the name of the book

double price – stores the price of the book

Member methods :

(i) BookFair() – Default constructor to initialize data members.

(ii) void Input() – To input and store the name and the price of the book.

(iii) void calculate() – To calculate the price after discount. Discount is calculated based on the following criteria.

Price

Less than or equal to ₹ 1000

More than ₹ 1000 and

less than or equal to ₹ 3000

More than ₹ 3000

Discount

2% of price

10% of price

15% of price

(iv) void display() – To display the name and price of the book after discount.

Write a main method to create an object of the class and call the above member methods.

Question 5.

Using the switch statement, write a menu driven program for the following : [15]

(i) To print the Floyd's triangle [given below] :

1

2 3

4 5 6

7 8 9 10

11 12 13 14 15

(ii) To display the following pattern

I

I C

I C S

I C S E

For an incorrect option, an appropriate error message should be displayed.

Question 6.

Special words are those words which starts and ends with same letter. [15]

Examples :

EXISTENCE

COMIC

WINDOW

Palindrome words are those words which read the same from left to right and vice-versa.

Examples :

MALAYALAM

MADAM

LEVEL

ROTATOR

CIVIC

All palindromes are special words, but all special words are not palindromes.

Write a program to accept a word check and print whether the word is a palindrome or only special word.

Question 7.

Design a class to overload a function SumSeries() as follows : [15]

(i) void SumSeries(int n, double x) – with one integer argument and one double argument to find and display the sum of the series given below :

$$s = \frac{x}{1} - \frac{x}{2} + \frac{x}{3} - \frac{x}{4} + \frac{x}{5} \dots \dots \dots \text{to } n \text{ terms}$$

(ii) void SumSeries() – To find and display the sum of the following series :

$$s = 1 + (1 \times 2) + (1 \times 2 \times 3)$$

$$+ \dots \dots \dots + (1 \times 2 \times 3 \times 4 \dots \dots \dots \times 20)$$

Question 8.

Write a program to accept a number and check and display whether it is a **Niven** number or not. [15]

(Niven number is that number which is divisible by its sum of digits).

Examples :

Consider the number 126.

Sum of its digits is $1 + 2 + 6 = 9$ and 126 is divisible by 9.

Question 9.

Write a program to initialize the seven Wonders of the World along with their locations in two different arrays. Search for a name of the country input by the user. If found, display the name of the country along with its Wonder, otherwise display "Sorry Not Found !" [15]

Seven wonders – CHICHENITZA, CHRISTTHE REDEEMER, TAJMAHAL, GREAT WALL OF CHINA, MACHU PICCHU, PETRA, COLOSSEUM

Locations – MEXICO, BRAZIL, INDIA, CHINA, PERU, JORDAN, ITALY

Example – Country Name : INDIA
Output: INDIA – TAJMAHAL
Country Name : USA
Output : Sorry Not Found!

ANSWERS

SECTION-A

Answer 1.

- (a) The wrapping up of data members and member functions together into a single unit called class is known as encapsulation.
- (b) Keywords are the tokens which convey a special meaning to the java compiler. These are reserved for special purpose and must not be used as normal identifiers.
e.g. for, while, class, return.
- (c) java.io, java.util
- (d) (i) It's a runtime error since we cannot obtain the square root of -9 .
(ii) It's a syntax error as comma must be used instead of semicolon.
- (e) (i) $p = 6$
(ii) $q = 37$

Answer 2.

(a)

| == operator | equals() method |
|---|---|
| == is a relational operator, used to check the equality of two primitive types. | equals() is a string function, used to check the equality of two strings. |

- (b) (i) Explicit type casting.
(ii) Implicit type casting.

(c)

| Formal Parameter | Actual Parameter |
|--|---|
| The parameter appearing in function definition statement is called formal parameter. | The parameter appearing in function calling statement is called actual parameter. |

e.g. :

```
class Demo
{
    void f1(int n) //Formal parameter
    {
        System.out.println(n);
    }
    void call()
    {
        int a = 5;
        f1(a); //Actual parameter
    }
}
```

(d) `int PosChar(String s, char c)`

(e) public and private

Answer 3.

- (a) (i) $2 + 10 = 12$ (ii) -2
(b) (i) 5.0 (ii) 4
(c) A constructor which accepts some values through parameters i.e., take arguments are called parameterized constructors.

e.g. :

```
class Test
{
    int n;
    public Test(int n1) // Parameterized constructor
    {
        n = n1;
    }
}
```

(d) `T = Math.sqrt(A * A + B * B + C * C);`

OR

```
T = Math.sqrt(Math.pow(A, 2) + Math.pow(B, 2) + Math.pow(C, 2));
```

(e) `System.out.print(x % 2 == 0 ? "EVEN" : "ODD");`

```
(f) int m = 5, n;
for(n = 10; n >= 1; n--)
{
    System.out.println(m * n);
}
```

(g)

| Primitive data types | Composite data types |
|--|---|
| 1. All primitive types have fixed sizes. | The size of composite types depends upon its constituent members. |
| 2. Primitive data type is passed by value. | Composite data type is passed by reference. |

- (h) (i) 5
10
(ii) Loop body will be executed 3 times
(i) $a = 7 + 7 + 9 + 8 + 8 = 39$
(j) (i) boolean
(ii) String

SECTION-B

Answer 4.

```
import java.util.*;
class BookFair
{
```

```

String Bname;
double price;
public BookFair()
{
    Bname = "";
    price = 0.0d;
}
void input()
{
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter book name
                        and price");

    Bname = sc.next();
    price = sc.nextDouble();
}
void calculate()
{
    if(price <= 1000)
    {
        price = price - 0.02 * price;
    }
    else if(price > 1000 && price <= 3000)
    {
        price = price - 0.10 * price;
    }
    else
    {
        price = price - 0.15 * price;
    }
}
void display()
{
    System.out.println("Name : " + Bname
                      + " Price : " + price);
}
public static void main(String args[])
{
    BookFair ob = new BookFair();
    ob.input();
    ob.calculate();
    ob.display();
}

```

| Name | Type | Description |
|-------|--------|---------------------------------|
| Bname | String | To store the book name. |
| price | double | To store the price of the book. |

Answer 5.

```

import java.util.*;
class Menu
{
    int ch, c = 1, i, j;
    String s = "ICSE";
    void display()
    {
        Scanner obj = new Scanner(System.in);
        System.out.println("1. Floyds Triangle");
        System.out.println("2. ICSE Pattern");
        System.out.println("Enter your choice");
        ch = obj.nextInt();
        switch(ch)
        {
            case 1: for(i = 1; i <= 5; i++)
                    {
                        for(j = 1; j <= i; j++)
                        {
                            System.out.print(c + "\t");
                            c++;
                        }
                        System.out.println();
                    }
                    break;
            case 2: for(i = 0; i < s.length(); i++)
                    {
                        for(j = 0; j <= i; j++)
                        {
                            System.out.print
                                (s.charAt(j));
                        }
                        System.out.println();
                    }
                    break;
            default : System.out.println
                ("Wrong Choice");
        }
    }
}

```

| Name | Type | Description |
|---------|--------|----------------------|
| s | String | To store a string. |
| ch | int | To store the choice. |
| i, j, c | int | Counter variables. |

Answer 6.

```

import java.util.*;
class Check
{
    String s, rev = "";

```



```

int i, l;
void display()
{
    Scanner obj = new Scanner(System.in);
    System.out.println("Enter a word");
    s = obj.nextLine();
    s = s.toUpperCase();
    l = s.length();
    for(i = l - 1; i >= 0; i--)
    {
        rev = rev + s.charAt(i);
    }
    if(s.equals(rev))
    {
        System.out.println("Palindrome word");
    }
    else if(s.charAt(0) == s.charAt(l - 1))
    {
        System.out.println("Special word");
    }
    else
    {
        System.out.println("Not a Palindrome
        or a Special word");
    }
}
}

```

| Name | Type | Description |
|------|--------|-----------------------------------|
| s | String | To store a string. |
| rev | String | To store the reverse of a string. |
| i | int | Counter variables. |
| l | int | To store the length of string. |

Answer 7.

```

class Overload
{
    double s = 0.0d;
    void SumSeries(int n, double x)
    {
        int i, sign = 1;
        for(i = 1; i <= n; i++)
        {
            s = s + x / i * sign;
            sign = sign * -1;
        }
        System.out.println(s);
    }
    void SumSeries()
    {

```

```

int i, j, f;
for(i = 1; i <= 20; i++)
{
    f = 1;
    for(j = 1; j <= i; j++)
    {
        f = f * j;
    }
    s = s + f;
}
System.out.println(s);
}

```

| Name | Type | Description |
|------|--------|-------------------------|
| s | double | To store the sum. |
| f | int | To store the factorial. |
| i, j | int | Counter variables. |

Answer 8.

```

import java.util.*;
class Niven
{
    int n, d, t, s = 0;
    void display(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a no.");
        n = sc.nextInt();
        t = n;
        while(n > 0)
        {
            d = n % 10;
            s = s + d;
            n = n / 10;
        }
        if(t % s == 0)
        {
            System.out.println("Niven no.");
        }
        else
        {
            System.out.println("Not a Niven no.");
        }
    }
}

```

| Name | Type | Description |
|------|------|-----------------------------|
| n, t | int | To store the number. |
| d | int | To extract the digits. |
| s | int | To store the sum of digits. |

Answer 9.

```
import java.util.*;
class Search
{
    String w[] = {"CHICHEN ITZA",
        "CHRIST THE REDEEMER", "TAJMAHAL",
        "GREAT WALL OF CHINA",
        "MACHU PICCHU", "PETRA",
        "COLOSSEUM"};
    String c[] = {"MEXICO", "BRAZIL",
        "INDIA", "CHINA", "PERU", "JORDAN",
        "ITALY"};
    String s;
    int i, flag = 0, index;
    void display(String args[])
    {
        Scanner br = new Scanner(System.in);
        System.out.println("Enter name to be
            searched");
        s = br.nextLine();
        for(i = 0; i < 7; i++)
        {
            if(s.equalsIgnoreCase(c[i]))
            {
                flag = 1;
            }
        }
    }
}
```

```
        index = i;
        break;
    }
}
if(flag == 1)
{
    System.out.println(c[index] + "-"
        + w[index]);
}
else
{
    System.out.println("Sorry Not Found!");
}
}
```

| Name | Type | Description |
|----------|--------------|---|
| w[], c[] | String array | To store 7 wonders and their countries. |
| s | String | To store name to be searched. |
| i | int | Counter variable. |
| flag | int | To check the status. |
| index | int | To store the index number. |

GURUKUL

QUESTIONS

SECTION-A (40 Marks)

Attempt **all** questions.

Question 1.

- (a) What are the default values of the primitive data type **int** and **float** ? [2]
- (b) Name any two OOP's principles. [2]
- (c) What are identifiers ? [2]
- (d) Identify the literals listed below : [2]
 - (i) 0.5 (ii) 'A'
 - (iii) false (iv) "a".
- (e) Name the wrapper classes of **char** type and **boolean** type. [2]

Question 2.

- (a) Evaluate the value of **n** if value of **p = 5, q = 19**.
`int n = (q - p) > (p - q) ? (q - p) : (p - q);` [2]
- (b) Arrange the following primitive data types in an ascending order of their size : [2]
 - (i) char (ii) byte
 - (iii) double (iv) int
- (c) What is the value stored in variable **res** given below : [2]


```
double res = Math.pow("345".indexOf('5'), 3);
```
- (d) Name the two types of constructors. [2]
- (e) What are the values of **a** and **b** after the following function is executed, if the values passed are 30 and 50; [2]


```
void paws(int a, int b)
{
    a = a + b;
    b = a - b;
    a = a - b;
    System.out.println(a + " , " + b);
}
```

Question 3.

- (a) State the data type and value of **y** after the following is executed : [2]


```
char x = '7';
y = Character.isLetter(x);
```
- (b) What is the function of **catch** block in exception handling ? Where does it appear in a program ? [2]
- (c) State the output when the following program segment is executed : [2]


```
String a = "Smartphone",
```

- ```
b = "Graphic Art";
String h = a.substring(2, 5);
String k = b.substring(8).toUpperCase();
System.out.println(h);
System.out.println(k.equalsIgnore Case(h));
```
- (d) The access specifier that gives the most accessibility is.....and the least accessibility is....., [2]
  - (e) (i) Name the mathematical function which is used to find **sine** of an angle given in radians. [2]
  - (ii) Name a string function which removes the blank spaces provided in the prefix and suffix of a string. [2]
  - (f) (i) What will this code print ? [2]
 

```
int arr [] = new int [5];
System.out.println(arr);
```

    - (a) 0 (b) value stored in arr [0]
    - (c) 0000 (d) garbage value
  - (ii) Name the keyword which is used to resolve the conflict between method parameter and instance variables/fields. [2]
  - (g) State the package that contains the class : [2]
    - (i) BufferedReader
    - (ii) Scanner.
  - (h) Write the output of the following program code : [2]
 

```
char ch;
int x = 97;
do
{
 ch = (char) x;
 System.out.print(ch + " ");
 if(x%10 == 0)
 break;
 ++x;
} while(x <= 100);
```
  - (i) Write the Java expressions for : [2]
 
$$\frac{a^2 + b^2}{2ab}$$
  - (j) If `int y = 10` then find `int z = (++y * (y++ + 5));` [2]

**SECTION-B (60 Marks)**

Attempt **any four** questions from this Section.

The answers in this Section should consist of the

**Programs in either**

**Blue J environment or any program environment with Java as the base.**

Each program should be written using

**Variable descriptions/Mnemonic Codes**

so that the logic of the program is clearly depicted.

Flow-Charts and Algorithms **are not required.**

**Question 4.**

Define a class called **ParkingLot** with the following description :

Instance variables/data members :

int vno – To store the vehicle number

int hours – To store the number of hours the vehicle is parked in the parking lot

double bill – To store the bill amount

Member methods :

void input( ) – To input and store the vno and hours.

void calculate( ) – To compute the parking charge at the rate of ₹ 3 for the first hour of part thereof, and ₹ 1.50 for each additional hour of part thereof.

void display( ) – To display the detail.

Write a main method to create an object of the class and call the above methods. [2]

**Question 5.**

Write two separate programs to generate the following patterns using iteration (loop) statements :

(a) \*

\* #

\* # \*

\* # \* #

\* # \* # \*

(b) 5 4 3 2 1

5 4 3 2

5 4 3

5 4

5

[15]

**Question 6.**

Write a program to input and store roll numbers, names and marks in 3 subjects of **n** number students in five single dimensional arrays and display the remark based on average marks as given below : (The maximum marks in the subject are 100)

Average marks = Total Marks/3

Average marks

Remark

85 – 100

EXCELLENT

75 – 84

DISTINCTION

60 – 74

FIRST CLASS

40 – 59

PASS

Less than 40

POOR

[15]

**Question 7.**

Design a class to overload a function Joysting() as follows :

(i) void joysting (String s, char ch1, char ch2) with one string argument and two character arguments that replaces the character argument **ch1** with the character argument **ch2** in the given strings and prints the new string.

Example :

Input value of s = "TECHNALAGY"

ch1 = 'A',

ch2 = 'O'

Output : "TECHNOLOGY"

(ii) void Joysting (String s) with one string argument that prints the position of the first space and the last space of the given string s.

Example :

Input value of s = "Cloud computing means Internet based computing"

Output : First index : 5

Last index : 36

(iii) void Joysting (String s1, String s2) with two string arguments that combines the two strings with a space between them and prints the resultant string.

Example :

Input value of s1 = "COMMONWEALTH"

Input value of s2 = "GAMES"

Output : "COMMONWEALTH GAMES"

(use library functions)

[15]

**Question 8.**

Write a program to input twenty names in an array. Arrange these names in descending order of alphabets, using the bubble sort technique. [15]

**Question 9.**

Using the switch statement, write a menu driven program to :

(i) To find and display all the **factors** of a number input by the user (including 1 and excluding number itself).

Example :

Sample Input : n = 15

Sample Output : 1, 3, 5



- (ii) To find and display the **factorial** of a number input by the user (the factorial of a non-negative integer  $n$ , denoted by  $n!$ , is the product of all integers less than or equal to  $n$ ).

Example :

Sample Input :  $n = 5$

Sample Output :  $5! = 1 \times 2 \times 3 \times 4 \times 5 = 120$ .

For an incorrect choice, an appropriate error message should be displayed. [15]

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) Default value of int is 0 and float is 0.0f.  
 (b) Encapsulation and Abstraction.  
 (c) Identifiers are a sequence of characters used to name variables, objects, classes, etc.  
 (d) (i) 0.5 is a double/floating point literal.  
 (ii) 'A' is a character literal.  
 (iii) false is a boolean literal.  
 (iv) "a" is a String literal.  
 (e) For char it is Character and for boolean it is Boolean.

#### Answer 2.

- (a)  $n = 14$ .  
 (b) (i) byte, (ii) char,  
 (iii) int, (iv) double.  
 (c)  $res = 8.0$   
 (d) Two types of constructors are :  
 (i) Non Parameterized Constructor.  
 (ii) Parameterized Constructor.  
 e.g. :

```
class Computer
{
 String teacher, coaching;
 public Computer() // Non Para-
 meterized Constructor
 {
 teacher = "Ritu Sharma";
 coaching = "Destination Point Computers,
 MP";
 }
 public Computer(String t, String c) //
 Parameterized Constructor
 {
 teacher = t;
 coaching = c;
 }
}
```

- (e) Value of  $a = 50$  and  $b = 30$ .

#### Answer 3.

- (a) Data type of  $y$  will be boolean and value of  $y =$  false.

- (b) Catch block is a group of Java statements that are used to handle a raised exception. We can put the code to deal with the execution that might arise, in this block. Catch block appears just after the try block.

- (c) art  
true  
 (d) The access specifier that gives the most accessibility is public and the least accessibility is private.  
 (e) (i) Math.sin()  
 (ii) trim()  
 (f) (i) (d) garbage value  
 (ii) this keyword is used to differentiate between local/parameters and global/instance variables.  
 (g) (i) Buffered Reader is stored in java.io package.  
 (ii) Scanner is stored in java.util package.  
 (h) a b c d  
 (i)  $(a * a + b * b) / (2 * a * b)$   
 (j)  $int\ z = (++y * (y++ + 5));$   
 $(11 * (11 + 5));$   
 176

### SECTION-B

#### Answer 4.

```
import java.util.*;
class ParkingLot
{
 int vno, hours;
 double bill;
 void input()
 {
 Scanner sc = new Scanner(System.in);
 System.out.println("Enter vehicle
 no. and hours");

 vno = sc.nextInt();
 hours = sc.nextInt();
 }
 void calculate()
 {
 if(hours <= 1)
 {
```

```

 bill = 3;
 }
 else
 {
 bill = 3 + 1.5 * (hours - 1);
 }
}
void display()
{
 System.out.println(vno + " " + hours
 + " " + bill);
}
public static void main(String args[])
{
 ParkingLot ob = new ParkingLot();
 ob.input();
 ob.calculate();
 ob.display();
}
}

```

| Name  | Type   | Description                                         |
|-------|--------|-----------------------------------------------------|
| vno   | int    | To store the vehicle number.                        |
| hours | int    | To store the number of hours the vehicle is parked. |
| bill  | double | To store the bill amount.                           |

**Answer 5.****(a)** class Pattern1

```

{
 int i, j;
 void display()
 {
 for(i = 1; i <= 5; i++)
 {
 for(j = 1; j <= i; j++)
 {
 if(j % 2 == 0)
 {
 System.out.print("#");
 }
 else
 {
 System.out.print("*");
 }
 }
 }
 }
}

```

System.out.println();

| Name | Type | Description                                      |
|------|------|--------------------------------------------------|
| i    | int  | As a loop variable for executing the outer loop. |
| j    | int  | As a loop variable for executing inner loop.     |

**(b)** class Pattern2

```

{
 int i, j;
 void display()
 {
 for(i = 1; i <= 5; i++)
 {
 for(j = 5; j >= i; j--)
 {
 System.out.print(j);
 }
 System.out.println();
 }
 }
}

```

| Name | Type | Description                                      |
|------|------|--------------------------------------------------|
| i    | int  | As a loop variable for executing the outer loop. |
| j    | int  | As a loop variable for executing the inner loop. |

**Answer 6.**

```

import java.util.*;
class Remark
{

```

```

 int n, i, rno[];
 String name[];
 double avg, m1[], m2[], m3[];
 void display()
 {
 Scanner br = new Scanner(System.in);
 System.out.println("Enter no. of students");
 n = br.nextInt();
 rno = new int[n];
 name = new String[n];
 m1 = new double[n];
 m2 = new double[n];
 m3 = new double[n];
 for(i = 0; i < n; i++)
 {

```

```

System.out.println("Enter the Details");
rno[i] = br.nextInt();
name[i] = br.next();
m1[i] = br.nextDouble();
m2[i] = br.nextDouble();
m3[i] = br.nextDouble();
}
for(i = 0; i < n ; i++)
{
 avg = (m1[i] + m2[i] + m3[i]) / 3.0;
 System.out.print(rno[i] + " " + name[i]);
 if(avg >= 85 && avg <= 100)
 {
 System.out.println("EXCELLENT");
 }
 else if(avg >= 75 && avg <= 84)
 {
 System.out.println("DISTINCTION");
 }
 else if(avg >= 60 && avg <= 74)
 {
 System.out.println("FIRST CLASS");
 }
 else if(avg >= 40 && avg <= 59)
 {
 System.out.println("PASS");
 }
 else
 {
 System.out.println("POOR");
 }
}
}
}

```

**Answer 7.**

```

class Overload
{
 void joysting(String s, char ch1, char ch2)
 {
 s = s.replace(ch1, ch2);
 System.out.println(s);
 }
 void joysting(String s)
 {
 int f, l;
 f = s.indexOf(' ');
 l = s.lastIndexOf(' ');
 System.out.println("First index "+f);
 System.out.println("Last index "+l);
 }
 void joysting(String s1, String s2)
 {
 String s = s1 + " " + s2;
 System.out.println(s);
 }
 public static void main(String args[])
 {
 Overload obj = new Overload();
 obj.joysting("TECHNALAGY", 'A', 'O');
 obj.joysting("Cloud computing means
 Internet based computing");
 obj.joysting("COMMONWEALTH",
 "GAMES");
 }
}

```

| Name   | Type   | Description                                    |
|--------|--------|------------------------------------------------|
| n      | int    | To input number of students.                   |
| rno[]  | int    | To store roll number of students in one array. |
| m1[]   | int    | To store marks of students in an array.        |
| m2[]   | int    | To store marks of students in an array.        |
| m3[]   | int    | To store marks of students in an array.        |
| name[] | String | To store names of students in an array.        |
| avg    | double | To calculate average marks.                    |
| i      | int    | As a loop variable.                            |

| Name | Type   | Description                                        |
|------|--------|----------------------------------------------------|
| s    | String | To store a string argument.                        |
| ch1  | char   | To store a character argument.                     |
| ch2  | char   | To store another character argument.               |
| f    | int    | To find the position of first space in the string. |
| l    | int    | To find position of last space in the string.      |
| s1   | String | To store a string argument.                        |
| s2   | String | To store another string argument.                  |

**Answer 8.**

```
import java.util.*;
class BSort
{
 int i, j;
 String name[] = new String[20];
 String t;
 void display()
 {
 Scanner br = new Scanner(System.in);
 for(i = 0; i < 20; i++)
 {
 System.out.println("Enter a Name");
 name[i] = br.next();
 }
 for(i = 0; i < 20 - 1; i++)
 {
 for(j = 0; j < 19 - i; j++)
 {
 if(name[j].compareTo (name[j + 1]) < 0)
 {
 t = name[j];
 name[j] = name[j + 1];
 name[j + 1] = t;
 }
 }
 }
 for(i = 0; i < 20; i++)
 {
 System.out.println(name[i]);
 }
 }
}
```

| Name   | Type   | Description                         |
|--------|--------|-------------------------------------|
| i      | int    | As a loop variable for outer loop.  |
| j      | int    | As a loop variable for inner loop.  |
| name[] | String | To store 20 names in an array.      |
| t      | String | Used to store a temporary variable. |

**Answer 9.**

```
import java.util.*;
class Menu
{
 int ch, n, f = 1, i;
```

```
void display()
{
 Scanner sc = new Scanner(System.in);
 System.out.println("1. Factors");
 System.out.println("2. Factorial");
 System.out.println("Enter Your Choice");
 ch = sc.nextInt();
 System.out.println("Enter a no.");
 n = sc.nextInt();
 switch(ch)
 {
 case 1: for(i = 1; i < n; i++)
 {
 if(n % i == 0)
 {
 System.out.print(i + ",");
 }
 }
 break;
 case 2: for(i = 1; i <= n; i++)
 {
 f = f * i;
 if(i < n)
 {
 System.out.print(i + "*");
 }
 else
 {
 System.out.print(i + "=");
 }
 }
 System.out.println(f);
 break;
 default : System.out.println("Wrong Choice");
 }
}
```

| Name | Type | Description                                     |
|------|------|-------------------------------------------------|
| ch   | int  | To input user's choice.                         |
| n    | int  | To store a number.                              |
| i    | int  | As a loop variable.                             |
| f    | int  | Used as a variable to find factorial of number. |



## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions.

#### Question 1.

- (a) Which of the following are valid comments ?  
(i) `/* comment */`  
(ii) `/* comment`  
(iii) `// comment`  
(iv) `*/ comment */` [2]
- (b) What is meant by a package ? Name any two java Application Programming Interface packages. [2]
- (c) Name the primitive data type in Java that is :  
(i) a 64-bit integer and is used when you need a range of values wider than those provided by **int**.  
(ii) a single 16-bit Unicode character whose default value is `'\u0000'` [2]
- (d) State one difference between the floating point literals **float** and **double**. [2]
- (e) Find the errors in the given program segment and rewrite the statements correctly to assign values to an integer array:  
`int a = new int (5);`  
`for(int i = 0; i <= 5; i++) a [i]=i;` [2]

#### Question 2.

- (a) Operators with higher precedence are evaluated before operators with relatively lower precedence. Arrange the operators given below in order of higher precedence to lower precedence:  
(i) `&&` (ii) `%`  
(iii) `>=` (iv) `++` [2]
- (b) Identify the statements listed below as assignment, increment, method invocation or object creation statements:  
(i) `System.out.println("Java");`  
(ii) `costPrice = 457.70;`  
(iii) `Car hybrid = new Car();`  
(iv) `petrolPrice++;` [2]
- (c) Give two differences between the **switch** statement and the **if-else** statement. [2]
- (d) What is an infinite loop ? Write an infinite loop statement. [2]
- (e) What is a constructor ? When is it invoked ? [2]

#### Question 3.

- (a) List the variables from those given below that are composite data types: [2]  
(i) `static int x;`  
(ii) `arr [i] = 10;`  
(iii) `obj.display();`  
(iv) `boolean b;`  
(v) `private char chr;`  
(vi) `String str;`
- (b) State the output of the following program segment :  
`String str 1 = "great"; String str2 = "minds";`  
`System.out.println(str1.substring(0, 2).`  
`concat(str2.substring(1)));`  
`System.out.println(("WH"+(str1.substring(2).`  
`toUpperCase())));` [2]
- (c) What are the final values stored in variable **x** and **y** below ?  
`double a = - 6.35;`  
`double b = 14.74;`  
`double x = Math.abs(Math.ceil(a));`  
`double y = Math rint(Math.max(a, b));` [2]
- (d) Rewrite the following program segment using **if-else** statements instead of the ternary operator.  
`String grade = (mark >= 90) ? "A" : (mark >= 80)`  
`? "B" : "C";` [2]
- (e) Give the output of the following method :  
`public static void main (String [] args)`  
`{`  
`int a = 5;`  
`a++;`  
`System.out.println(a);`  
`a -= (a - -) - (- a);`  
`System.out.println(a);`  
`}` [2]
- (f) What is the data type returned by the library functions :  
(i) `compareTo()`  
(ii) `equals()` [2]
- (g) State the value of **characteristic** and **mantissa** when the following code is executed.  
`String s = "4.3756";`  
`int n = s.indexOf('.');`

```
int characteristic = Integer.parseInt(s.substring
(0,n));
int mantissa = Integer.valueOf(s.substring(n + 1));
```

(h) Study the method and answer the given questions.

```
public void sampleMethod()
{
 for(int i = 0; i < 3; i++)
 {
 for(int j = 0; j < 2; j++)
 {
 int number = (int) (Math.random()
* 10);
 System.out.println(number);
 }
 }
}
```

- (i) How many times does the loop execute ?  
(ii) What is the range of possible values stored in the variable number ?

(i) Consider the following class :

```
public class myClass
{
 public static int x = 3, y = 4;
 public int a = 2, b = 3;
}
```

- (i) Name the variable for which each object of the class will have its own distinct copy.  
(ii) Name the variable that are common to all objects of the class.

(j) What will be the output when the following code segments are executed ?

- (i) String s = "1001";  
int x = Integer.valueOf(s);  
double y = Double.valueOf(s);  
System.out.println("x = "+x);  
System.out.println("y = "+y);  
(ii) System.out.println("The king said "Begin the beginning!" to me.");

### SECTION-B (60 Marks)

Attempt any **four** questions from this Section.  
The answers in this Section should consist of the

**Programs in either**

**Blue J environment or any program environment with Java as the base.**

Each program should be written using **Variable descriptions/Mnemonic Codes** so that the logic of the program is clearly depicted. Flow-Charts and Algorithms **are not required**.

### Question 4.

Define a class named **movieMagic** with the following description :

Instance variables/data members :

int year — to store the year of release of a movie  
String title — to store the title of the movie  
float rating — to store the popularity rating of the movie  
(minimum rating = 0.0 and maximum rating = 5.0)

Member methods:

- (i) movieMagic() Default constructor to initialize numeric data members to 0 and String data members to ""  
(ii) void accept() To input and store year, title and rating.  
(iii) void display() To display the title of a movie and a message based on the rating as per the table below.

| Rating     | Message to be displayed |
|------------|-------------------------|
| 0.0 to 2.0 | Flop                    |
| 2.1 to 3.4 | Semi-hit                |
| 3.5 to 4.5 | Hit                     |
| 4.6 to 5.0 | Super Hit               |

Write a main method to create an object of the class and call the above member methods.

### Question 5.

A special two-digit number is such that when the sum of its digits is added to the product of its digits, the result is equal to the original two-digit number.

Example : Consider the number 59.

Sum of digits = 5 + 9 = 14

Product of its digits = 5 × 9 = 45

Sum of the sum of digits and product of digits = 14 + 45 = 59

Write a program to accept a two-digit number. Add the sum of its digits to the product of its digits. If the value is equal to the number input, output the message "Special 2-digit number" otherwise, output the message "Not a special 2-digit number".

### Question 6.

Write a program to assign a full path and file name as given below. Using library functions, extract and output the file path, file name and file extension separately as shown.

Input : C:\Users\admin\Pictures\flower.jpg

Output : path: C:\users\admin\Pictures\

File name : flower

Extension : jpg

[15]

**Question 7.**

Design a class to overload a function area() as follows :

- (i) double area (double a, double b, double c) with three double arguments, returns the area of a scalene triangle using the formula :

$$\text{area} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$\text{where } s = \frac{a+b+c}{2}$$

- (ii) double area (int a, int b, int height) with three integer arguments, returns the area of a trapezium using the formula.

$$\text{area} = \frac{1}{2} \text{ height } (a + b)$$

- (iii) double area (double diagonal 1, double diagonal 2) with two double arguments, returns the area of a rhombus using the formula :

$$\text{area} = \frac{1}{2} (\text{diagonal 1} \times \text{diagonal 2})$$

[15]

**Question 8.**

Using the switch statement, write a menu driven program to calculate the maturity amount of a Bank Deposit.

The user is given the following options :

(i) Term Deposit

(ii) Recurring Deposit

For option (i) accept principal (P), rate of interest (r) and time period in years (n). Calculate and output the maturity amount (A) receivable using the formula

$$A = P \left[ 1 + \frac{r}{10} \right]^n$$

For option (ii) accept Monthly Installment (P), rate of interest (r) and time period in months (n). Calculate and output the maturity amount (A) receivable using the formula :

$$A = P \times n + P \times \frac{r}{100} \times \frac{n(n+1)}{2}$$

For an incorrect option, an appropriate error message should be displayed.

[15]

**Question 9.**

Write a program to accept the year of graduation from school as an integer value from the user. Using the Binary Search technique on the sorted array of integers given below,

Output the message "Record exists" If the value input is located in the array. If not, output the message "Record does not exist".

{1982, 1987, 1993, 1996, 1999, 2003, 2006, 2007, 2009, 2010}

[15]

**ANSWERS****SECTION-A****Answer 1.**

- (a) (i) /\*comment \*/

(iii) //comment

are valid comments.

- (b) Package is the collection of related classes and interfaces having common functionality.

e.g. : java.io, java.lang

- (c) (i) long

(ii) char

- (d)

| Float                              | Double                              |
|------------------------------------|-------------------------------------|
| Float occupies 4 bytes of storage. | Double occupies 8 bytes of storage. |

- (e) 1. int a[] = new int[5]; (square brackets [] must be used.)  
2. for(int i = 0; i < 5; i++) a[i] = i; (i must be less than 5)

**Answer 2.**

- (a) (iv) ++, (ii) %, (iii) >=, (i) &&

- (b) (i) System.out.println("Java");

→ is method invocation statement.

- (ii) costPrice = 457.50;

→ is assignment statement.

- (iii) Car hybrid = new Car();

→ is object creation statement.

- (iv) petrolPrice++;

→ is increment statement.

- (c)

| Switch                               | If - Else                                                          |
|--------------------------------------|--------------------------------------------------------------------|
| 1. It can only test for equality.    | It can work with all relational/logical operators.                 |
| 2. It cannot handle floating points. | It can handle floating/integers as well as characters and strings. |

- (d) A non-terminating loop is known as an infinite loop.

e.g. : for(i = 1; i > 0; i++)

```
{
 System.out.println("Destination");
}
```

- (e) Constructor is a member function that has the same name as the class and it has no return type, not even void.

It is automatically invoked at the time of object creation.

### Answer 3.

- (a) The variables those can be categorized under composite data types are as follows :

(ii) arr[i] = 10;

(iii) obj.display();

(vi) String str;

- (b) grinds  
WHEAT

- (c) x = 6.0  
y = 15.0

- (d) String grade;  
if(mark >= 90)  
    grade = "A";  
else if( mark >= 80)  
    grade = "B";  
else  
    grade = "C";

- (e) 6  
4

- (f) (i) int  
Ex. : int result =  
        "computer".compareTo("applications");

(ii) boolean  
Ex. : boolean result = "ritesh".equals("jhansi");

- (g) characteristic = 4  
mantissa = 3756

- (h) (i) The loop will execute will execute 6 times.  
(ii) 0 to 9

- (i) (i) a, b since they are instance variables.  
(ii) x, y since they are class variables.

- (j) (i) x = 1001  
        y = 1001.0  
(ii) The king said "Begin at the beginning!" to me.

### SECTION-B

### Answer 4.

```
import java.io.*;
class movieMagic
{
 int year;
```

```
String title;
float rating;
public movieMagic()
{
 year = 0;
 title = "";
 rating = 0.0;
}
void accept()throws IOException
{
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("Enter year and title");
 year = Integer.parseInt(br.readLine());
 title = br.readLine();
 do
 {
 System.out.println("Enter rating
 (minimum 0.0 and maximum 5.0)");
 rating = Float.parseFloat(br.readLine());
 }
 while(! (rating >= 0.0f && rating <= 5.0f));
}
void display()
{
 System.out.println(title);
 if(rating <= 2.0)
 {
 System.out.println("Flop");
 }
 else if(rating >= 2.1 && rating <= 3.4)
 {
 System.out.println("Semi Hit");
 }
 else if(rating >= 3.5 && rating <= 4.5)
 {
 System.out.println("Hit");
 }
 else
 {
 System.out.println("Super Hit");
 }
}
public static void main(String args[]) throws
 IOException
{
```



```

 movieMagic ob = new movieMagic();
 ob.accept();
 ob.display();
 }
}

```

| Name   | Type   | Description                                |
|--------|--------|--------------------------------------------|
| year   | int    | To store the year of release of a movie.   |
| title  | String | To store title of the movie.               |
| rating | float  | To store the popularity rating of a movie. |

**Answer 5.**

```

import java.io.*;
class Special
{
 int n, b, s = 0, p = 1;
 void display()throws IOException
 {
 BufferedReaderbr = new BufferedReader
 (new InputStreamReader(System.in));
 System.out.println("Enter a two digit no.");
 n = Integer.parseInt(br.readLine());
 if(n >= 10 && n <= 99)
 {
 while(n > 0)
 {
 b = n % 10;
 s = s * 10 + b;
 p = p * 10;
 n = n / 10;
 }
 if(s / p == n)
 {
 System.out.println("Special 2 - digit
 number");
 }
 else
 {
 System.out.println("Not a Special
 2 - digit number");
 }
 }
 }
}

```

| Name | Type | Description                        |
|------|------|------------------------------------|
| n    | int  | To store a two-digit number.       |
| b    | int  | To extract digits from the number. |
| s    | int  | To calculate sum of digits.        |
| p    | int  | To calculate product of digits.    |

**Answer 6.**

```

class Path
{
 String s,.pth, fname, file, ext;
 int i, j;
 void display()
 {
 s = "C:\\Users\\admin\\Pictures\\
 flower.jpg";
 i = s.lastIndexOf("\\");
 .pth = s.substring(0, i + 1);
 fname = s.substring(i + 1);
 j = fname.indexOf('.');
 file = fname.substring(0, j);
 ext = fname.substring(j + 1);
 System.out.println("Path : " +.pth);
 System.out.println("File name : " + file);
 System.out.println("Extension : " + ext);
 }
}

```

| Name  | Type   | Description                                           |
|-------|--------|-------------------------------------------------------|
| s     | String | To assign full path and file name.                    |
| pth   | String | To extract the file path.                             |
| file  | String | To extract the file name.                             |
| ext   | String | To extract the file extension.                        |
| i     | int    | To find the last position of '\\'.                    |
| j     | int    | To find the last position of '.'.                     |
| fname | String | To extract a part of string from the original string. |

**Answer 7.**

```

class Overload
{
 double ar;
 double area(double a, double b, double c)
 {

```

```

double s = (a + b + c)/2;
ar = Math.sqrt(s * (s - a) * (s - b) * (s - c));
return(ar);
}
double area(int a, int b, int height)
{
 ar = 0.5 * height * (a + b);
 return(ar);
}
double area(double diagonal1, double
 diagonal2)
{
 ar = 0.5 * diagonal1 * diagonal2;
 return(ar);
}
}

```

| Name       | Type   | Description                                                 |
|------------|--------|-------------------------------------------------------------|
| a          | double | To store a double argument.                                 |
| b          | double | To store a double argument.                                 |
| c          | double | To store a double argument.                                 |
| ar         | double | To calculate area.                                          |
| s          | double | As a variable used to calculate area of a scalene triangle. |
| height     | int    | To store height of trapezium.                               |
| diagonal 1 | double | To store the value of the diagonal of a rhombus.            |
| diagonal 2 | double | To store the value of the diagonal of the rhombus.          |

**Answer 8.**

```

import java.io.*;
class Bank
{
 double P, r, n, A;
 int ch;
 void display()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("1. Term Deposit");
 System.out.println("2. Recurring
 Deposit");
 System.out.println("Enter your choice");
 ch = Integer.parseInt(br.readLine());
 }
}

```

```

switch(ch)
{
 case 1 : System.out.println("Enter prin-
 cipal, rate and time in years");
 P = Double.parseDouble(br.
 readLine());
 r = Double.parseDouble(br.
 readLine());
 n = Double.parseDouble(br.
 readLine());
 A = P * Math.pow(1 + r/100.0,
 n);
 break;
 case 2 : System.out.println("Enter
 monthly installment, rate
 and time in months");
 P = Double.parseDouble(br.
 readLine());
 r = Double.parseDouble(br.
 readLine());
 n = Double.parseDouble(br.
 readLine());
 A = (P * n) + (P * n * (n + 1.0)
 / 2.0 * r / 100.0 * 1.0/12.0);
 break;
 default: A = 0;
 System.out.println("Wrong
 Choice");
 break;
}
System.out.println("Maturity
 Amount " +A);
}

```

| Name | Type   | Description                   |
|------|--------|-------------------------------|
| ch   | int    | To input user's choice.       |
| r    | double | To enter rate.                |
| P    | double | To enter principal amount.    |
| n    | double | To enter time period.         |
| A    | double | To calculate maturity amount. |

**Answer 9.**

```

import java.io.*;
class Search
{
 int A[] = {1982, 1987, 1993, 1996, 1999,
 2003, 2006, 2007, 2009, 2010};
}

```

```

int n, l, h, mid, flag = 0;
void display()throws IOException
{
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("Enter year");
 n = Integer.parseInt(br.readLine());
 l = 0;
 h = A.length - 1;
 while(l <= h)
 {
 mid = (l + h) / 2;
 if(A[mid] == n)
 {
 flag = 1;
 break;
 }
 if(n > A[mid])
 {
 l = mid + 1;
 }
 else if(n < A[mid])
 {
 h = mid - 1;
 }
 }
 if(flag == 1)
 {
 System.out.println("Record exists");
 }
 else
 {
 System.out.println("Record does not
 exists");
 }
}

```

| Name  | Type | Description                                                            |
|-------|------|------------------------------------------------------------------------|
| A [ ] | int  | To store year of graduation in an array.                               |
| n     | int  | To enter year from user to find the mid term.                          |
| mid   | int  | To find the mid term in the array.                                     |
| flag  | int  | As a variable to check whether the year is present in the record list. |
| d     | int  | To store a value.                                                      |
| n     | in   | To Store the length of the variable.                                   |

GURUKUL

## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions.

#### Question 1.

- (a) What is meant by precedence of operators ? [2]
- (b) What is a literal ? [2]
- (c) State the Java concept that is implemented through :
  - (i) a superclass and a subclass
  - (ii) the act of representing essential features without including background details. [2]
- (d) Give a difference between a constructor and a method. [2]
- (e) What are the types of casting shown by the following examples?
  - (i) `double x = 15.2;`  
`int y = (int)x;`
  - (ii) `int x = 12;`  
`long y = x;` [2]

#### Question 2.

- (a) Name any two wrapper classes. [2]
- (b) What is the difference between a break statement and a continue statement when they occur in a loop ? [2]
- (c) Write statements to show how finding the length of a character array `char[]` differs from finding the length of a String object `str`. [2]
- (d) Name the Java keyword that :
  - (i) indicates that a method has no return type
  - (ii) stores the address of the currently - calling object. [2]

- (e) What is an exception ? [2]

#### Question 3.

- (a) Write a Java statement to create an object `mp4` of class `digital`. [2]
- (b) State the values stored in the variables `str1` and `str2`  
`String s1 = "good"; String s2 = "world matters";`  
`String str1 = s2.substring(5), replace('t', 'n');`  
`String str2 = s1.concat(str1);` [2]
- (c) What does a class encapsulate ? [2]
- (d) Rewrite the following program segment using the if... else statement  
`comm = (sale > 15000) ? sale * 5/100 : 0;` [2]
- (e) How many times will the following loop execute? What value will be returned ?

`int x = 2, y = 50;`

`do`

`{`

`++x;`

`y -= x++;`

`} while(x <= 10);`

`return y;`

[2]

- (f) What is the data type that the following library functions return ?

(i) `isWhitespace(char ch)`

(ii) `Math.random()`

[2]

- (g) Write a Java expression for

$ut + \frac{1}{2}ft^2$

[2]

- (h) If `int n[] = {1, 2, 3, 5, 7, 9, 13, 16}`, what are the values of `x` and `y` ?

`x = Math.pow(n[4], n[2]);`

`y = Math.sqrt(n[5] + n[7]);`

[2]

- (i) What is the final value of `ctr` when the iteration process given below; executes ?

`int ctr = 0;`

`for(int i = 1; i <= 5; i++)`

`for(int j = 1; j <= 5; j+=2)`

`++ctr;`

[2]

- (j) Name the methods of Scanner class that :

(i) is used to input an integer data from the standard input stream

(ii) is used to input a String data from the standard input stream. [2]

### SECTION-B (60 Marks)

Attempt any **four** questions from this Section.

The answers in this Section should consist of the

**Programs in either**

**Blue J environment or any program environment with Java as the base.**

Each program should be written using

**Variable descriptions/Mnemonic Codes**

so that the logic of the program is clearly depicted.

Flow-Charts and Algorithms **are not required.**

#### Question 4.

Define a class named **FruitJuice** with the following description :

Instance variables/data members :



int product\_code — stores the product code number

String flavour — stores the flavour of the juice (E.g. orange, apple, etc.)

String pack\_type — stores the type of packaging (E.g. tetra-pack, PET bottle, etc.)

int pack\_size — stores package size (E.g. 200 ml, 400 ml, etc.)

int product\_price — stores the price of the product

Member methods :

- (i) FruitJuice() — Default constructor to initialize integer data members to 0 and String data members to "".
- (ii) void input() — To input and store the product code, flavour, pack type, pack size and product price.
- (iii) void discount() — To reduce the product price by 10.
- (iv) void display() — To display the product code, flavour, pack type, pack size and product price.

[15]

**Question 5.**

The International Standard Book Number (ISBN) is a unique numeric book identifier which is printed on every book. The ISBN is based upon a 10-digit code. The ISBN is legal if :

$1 \times \text{digit}_1 + 2 \times \text{digit}_2 + 3 \times \text{digit}_3 + 4 \times \text{digit}_4 + 5 \times \text{digit}_5 + 6 \times \text{digit}_6 + 7 \times \text{digit}_7 + 8 \times \text{digit}_8 + 9 \times \text{digit}_9 + 10 \times \text{digit}_{10}$  is divisible by 11.

Example : For an ISBN 1401601499

$\text{Sum} = 1 \times 1 + 2 \times 4 + 3 \times 0 + 4 \times 1 + 5 \times 6 + 6 \times 0 + 7 \times 1 + 8 \times 4 + 9 \times 9 + 10 \times 9 = 253$  which is divisible by 11.

Write a program to :

- (i) Input the ISBN code as a 10-digit integer.
- (ii) If the ISBN is not a 10-digit integer, output the message, "Illegal ISBN" and terminate the program.

(iii) If the number is 10-digit, extract the digits of the number and compute the sum as explained above.

If the sum is divisible by 11, output the message, "Legal ISBN". If the sum is not divisible by 11, output the message, "Illegal ISBN". [15]

**Question 6.**

Write a program that encodes a word into Piglatin. To translate word into a Piglatin word, convert the word into uppercase and then place the first vowel of the original word as the start of the new word along with the remaining alphabets. The alphabets present before the vowel being shifted towards the end followed by "AY".

Sample input (1) : London,

Sample output (1) : ONDONLAY

Sample input (2) : Olympics,

Sample output (2) : OLYMPICSAY [15]

**Question 7.**

Write a program to input 10 integer elements in an array and sort them in descending order using the bubble sort technique. [15]

**Question 8.**

Design a class to overload a function series() as follows :

- (i) double series(double n) with one double argument and returns the sum of the series,

$$\text{sum} = \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{n}$$

- (ii) double series(double a, double n) with two double arguments and returns the sum of the series,

$$\text{sum} = \frac{1}{a^2} + \frac{4}{a^5} + \frac{7}{a^8} + \frac{10}{a^{11}} + \dots \text{ to } n \text{ terms. [15]}$$

**Question 9.**

Using the switch statement, write a menu driven program :

- (i) To check and display whether a number input by the user is a composite number or not (A number is said to be a composite, if it has one or more than one factor excluding 1 and the number itself).  
Example : 4, 6, 8, 9 ...
- (ii) To find the smallest digit of an integer that is input.  
Sample input : 6524  
Sample output : Smallest digit is 2  
For an incorrect choice, an appropriate error message should be displayed. [15]

**ANSWERS****SECTION-A****Answer 1.**

- (a) The order in which operators of an expression are evaluated in a predetermined order is called operator precedence. It is also called hierarchy of operators.

- (b) A literal is the data or a sequence of characters used in a program to represent a constant that never changes its value during the execution of a program.

- (c) (i) Inheritance.  
(ii) Abstraction.

- (d) Refer to ICSE Paper 2017, Answer 3. (e)  
 (e) (i) Explicit type casting.  
 (ii) Implicit type casting.

**Answer 2.**

- (a) Integer, Double.  
 (b)

| Break Statement                                                                                                                                                                    | Continue Statement                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| The break statement is used to quit from the loop without executing any of the remaining statements in the loop and the execution begins at the next statement following the loop. | The continue statement skips the current iteration of the loop and moves to the next iteration skipping all the remaining instructions within the loop. |

- (c) To find the length of an array; the statement is :  
 char.length  
 To find the length of a string; the statement is :  
 String str = "abc";  
 str.length();  
 (d) (i) void  
 (ii) this  
 (e) It is the anomalous (unexpected) situation which occurs during program execution.

**Answer 3.**

- (a) digital mp4 = new digital();  
 (b) str1 = manners and str2 = good manners  
 (c) A class encapsulates the data members and the member functions. Data members represent the state of an object and member functions represent the behaviour of an object.  
 (d) if(sale > 15000)  
 {  
     comm = sale \* 5/100;  
 }  
 else  
 {  
     comm = 0;  
 }  
 (e) Loop will execute 4 times and y will be returned as 30.  
 (f) (i) boolean  
 (ii) double  
 (g)  $u * t + 1.0/2 * f * \text{Math.pow}(t, 2)$   
     OR  
 $u * t + 1.0/2 * f * t * t$

- (h)  $x = 343.0$  and  $y = 5.0$   
 (i) ctr = 15  
 (j) (i) scanner.nextInt();  
 (ii) scanner.next();

**SECTION-B****Answer 4.**

```
import java.io.*; // importing package
class FruitJuice
{
 int product_code, pack_size, product_price;
 String flavour, pack_type;
 public FruitJuice()
 {
 product_code = 0;
 pack_size = 0;
 product_price = 0;
 flavour = "";
 pack_type = "";
 }
 void input()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("Enter Product
 Details");
 product_code = Integer.parseInt
 (br.readLine());
 flavour = br.readLine();
 pack_type = br.readLine();
 pack_size = Integer.parseInt(br.read
 Line());
 product_price = Integer.parseInt
 (br.readLine());
 }
 void discount()
 {
 product_price = product_price - 10;
 }
 void display()
 {
 System.out.println(product_code + " " +
 flavour + " " + pack_type + " " +
 pack_size + " " + product_price);
 }
} // class ending
```

| Name          | Type   | Description                   |
|---------------|--------|-------------------------------|
| Product_code  | int    | To store product code number. |
| flavour       | String | To store flavour.             |
| pack_type     | String | To Store type of packaging.   |
| pack_size     | int    | To store package size.        |
| product_price | int    | To store price of product.    |

**Answer 5.**

```

import java.io.*; // importing package
class Number
{
 long n, t, rev = 0, d, s = 0;
 int c = 0, x = 1;
 void display()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("Enter a no.");
 n = Long.parseLong(br.readLine());
 t = n;
 while(t > 0)
 {
 c++;
 t = t/10;
 }
 if(c != 10)
 {
 System.out.println("Illegal ISBN");
 System.exit(0);
 }
 else
 {
 while(n > 0)
 {
 d = n % 10;
 rev = rev * 10 + d;
 n = n/10;
 }
 while(rev > 0)
 {
 d = rev % 10;
 s = s + x * d;
 x++;
 rev = rev / 10;
 }
 }
 }
}

```

```

} // while loop ending
if(s % 11 == 0)
{
 System.out.println("Legal ISBN");
}
else
{
 System.out.println("Illegal ISBN");
}
}
}
}

```

| Name      | Type | Description                    |
|-----------|------|--------------------------------|
| n, rev, s | long | To store ISBN and its reverse. |
| t, d      | long | To store digits.               |
| i         | int  | For loop counter.              |
| c, x      | int  | To store counter value.        |

**Answer 6.**

```

import java.io.*; // importing package
class Piglatin
{
 int l, i;
 String s, p;
 char ch;
 public Piglatin()
 {
 s = "ComputerWorld";
 }
 void display()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new InputStreamReader
 (System.in));
 System.out.println("Enter a string");
 s = br.readLine();
 s = s.toUpperCase();
 l = s.length();
 for(i = 0; i < l; i++)
 {
 ch = s.charAt(i);
 if(ch == 'A' | | ch == 'E' | | ch == 'I'
 | | ch == 'O' | | ch == 'U')
 {
 p = s.substring(i) + s.substring(0, i)
 + "AY";
 }
 }
 }
}

```

```

 System.out.println(p);
 break;
 }
}
} // class ending

```

| Name | Type   | Description                |
|------|--------|----------------------------|
| s, p | String | To store words.            |
| ch   | char   | To store a character.      |
| l    | int    | To store length of string. |
| i    | int    | Counter variable.          |

**Answer 7.**

```

import java.io.*; // importing package
class Arrange
{
 int A[] = new int[10];
 int i, j, t;
 void display()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 for(i = 0; i < 10; i++)
 {
 System.out.println("Enter a no.");
 A[i] = Integer.parseInt(br.readLine());
 }
 for(i = 0; i < 10; i++)
 {
 for(j = 0; j < 9 - i; j++)
 {
 if(A[j] < A[j + 1])
 {
 t = A[j];
 A[j] = A[j + 1];
 A[j + 1] = t;
 }
 } // inner for loop ending
 }
 for(i = 0; i < 10; i++)
 {
 System.out.println(A[i]);
 }
 }
}

```

| Name | Type | Description                                |
|------|------|--------------------------------------------|
| A[]  | int  | To store 10 numbers.                       |
| t    | int  | Temporary variable to store value to swap. |
| i, j | int  | Loop counter.                              |

**Answer 8.**

```

class Overload
{ // class beginning
 double s = 0;
 double series(double n)
 {
 int i;
 for(i = 1; i <= n; i++)
 {
 s = s + 1.0/i;
 }
 return(s);
 }
 double series(double a, double n)
 {
 int i, c = 1;
 for(i = 1; i <= n; i++)
 {
 s = s + c/Math.pow(a, c + 1);
 c = c + 3;
 }
 return(s); // returns the value of s
 }
}

```

| Name | Type   | Description              |
|------|--------|--------------------------|
| n    | double | To store value of n.     |
| s    | double | To store sum.            |
| i    | int    | Loop counter.            |
| c    | Int    | To store exponent value. |

**Answer 9.**

```

import java.io.*; // importing package
class Menu
{
 int n, ch, i, c = 0, d, min = 10;
 void display()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("1.Composite");
 System.out.println("2. Minimum Digit");
 System.out.println("Enter Your Choice");
 }
}

```



```

ch = Integer.parseInt(br.readLine());
System.out.println("Enter a no.");
n = Integer.parseInt(br.readLine());
switch(ch)
{
 case 1 : for(i = 1; i <= n; i++)
 {
 if(n % i == 0)
 {
 c++;
 }
 }
 if(c > 2)
 {
 System.out.println(n + "is
 composite no.");
 }
 else
 {
 System.out.println(n + " is not
 a composite no.");
 }
 break;
 case 2 : mid = d % 10;
 while(n > 0)
 {

```

```

 d = n%10;
 if(d < min)
 {
 min = d;
 }
 n = n/10;
 }
 System.out.println("Smallest
 Digit is : " + min);
 break;
 default: System.out.println("Wrong
 Choice");
} // switch case ending

```

| Name | Type | Description                  |
|------|------|------------------------------|
| n    | int  | To store value of n.         |
| ch   | int  | To store option.             |
| i    | int  | Loop counter.                |
| c    | int  | To store exponent value.     |
| d    | int  | To store digit.              |
| min  | int  | To store the smallest digit. |

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## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions.

#### Question 1.

- (a) Give one example each of a primitive data type and a composite data type. [2]
- (b) Give one point of difference between unary and binary operators. [2]
- (c) Differentiate between call by value or pass by value and call by reference or pass by reference. [2]
- (d) Write a Java expression for  $\sqrt{2as + u^2}$ . [2]
- (e) Name the type of error (syntax, runtime or logical error) in each case given below :
  - (i) Division by a variable that contains a value of zero. [2]
  - (ii) Multiplication operator used when the operation should be division. [2]
  - (iii) Missing semicolon. [2]

#### Question 2.

- (a) Create a class with one integer instance variable. Initialize the variable using :
  - (i) default constructor. [2]
  - (ii) parameterized constructor. [2]
- (b) Complete the code below to create an object of Scanner class. [2]  
`Scanner sc = ____ Scanner(____).`
- (c) What is an array ? Write a statement to declare an integer array of 10 elements. [2]
- (d) Name the search or sort algorithm that :
  - (i) Makes several passes through the array, selecting the next smallest item in the array each time and placing it where it belongs in the array. [2]
  - (ii) At each stage, compares the sought key value with the key value of the middle element of the array. [2]
- (e) Differentiate between public and private modifiers for members of a class. [2]

#### Question 3.

- (a) What are the values of x and y when the following statements are executed ?  
`int a = 63, b = 36;`  
`boolean x = (a > b) ? true : false;`  
`int y = (a < b) ? a : b;` [2]

- (b) State the values of n and ch.

```
char c = 'A';
```

```
int n = c + 1;
```

```
char ch = (char) n;
```

[2]

- (c) What will be the result stored in x after evaluating the following expression ?

```
int x = 4;
```

```
x += (x++) + (++x) + x
```

[2]

- (d) Give the output of the following program segment :

```
double x = 2.9, y = 2.5;
```

```
System.out.println(Math.min(Math.floor(x), y));
```

```
System.out.println(Math.max(Math.ceil(x), y));
```

[2]

- (e) State the output of the following program segment :

```
String s = "Examination";
```

```
int n = s.length();
```

```
System.out.println(s.startsWith(s.substring(5, n)));
```

```
System.out.println(s.charAt(2) == s.charAt(6));
```

[2]

- (f) State the method that :

- (i) Converts a string to a primitive float data type.

- (ii) Determines if the specified character is an uppercase character. [2]

- (g) State the data type and values of a and b after the following segment is executed:

```
String s1 = "Computer", s2 = "Applications";
```

```
a = (s1.compareTo(s2));
```

```
b = (s1.equals(s2));
```

[2]

- (h) What will the following code output ?

```
String s = "malayalam";
```

```
System.out.println(s.indexOf('m'));
```

```
System.out.println(s.lastIndexOf('m'));
```

[2]

- (i) Rewrite the following program segment using while instead of for statement:

```
int f = 1, i;
```

```
for(i = 1; i < 5; i++)
```

```
{
```

```
 f *= i; System.out.println(f);
```

```
}
```

[2]

- (j) In the program given below, state the name and the value of the :

(i) method argument or argument variable

(ii) class variable

(iii) local variable

(iv) instance variable

class myClass

{

static int x = 7;

int y = 2;

public static void main(String args[])

{

myClass obj = new myClass();

System.out.println(x);

obj.sampleMethod(5);

int a = 6;

System.out.println(a);

}

void sampleMethod(int n)

{

System.out.println(n);

System.out.println(y);

}

}

**SECTION-A (60 Marks)**Attempt any **four** questions from this Section.**Question 4.**Define a class called *Library* with the following description :

Instance variables/data members :

int acc\_num — stores the accession number of the book

String title — stores the title of the book

String author — stores the name of the author

Member methods :

(i) void input() — To input and store the accession number, title and author.

(ii) void compute() — To accept the number of days late, calculate and display the fine charged at the rate of ₹ 2 per day.

(iii) void display() — To display the details in the following format :

Accession Number Title Author

Write a main method to create an object of the class and call the above member methods. [15]

**Question 5.**

Given below is a hypothetical table showing rates of Income Tax for male citizens below the age of 65 years :

| Taxable Income (TI) in ₹                                        | Income Tax in ₹                  |
|-----------------------------------------------------------------|----------------------------------|
| Does not exceed ₹ 1,60,000                                      | Nil                              |
| Is greater than ₹ 1,60,000 and less than or equal to ₹ 5,00,000 | (TI — 1,60,000) × 10%            |
| Is greater than ₹ 5,00,000 and less than or equal to ₹ 8,00,000 | [(TI — 5,00,000) × 20%] + 34,000 |
| Is greater than ₹ 8,00,000                                      | [(TI — 8,00,000) × 30%] + 94,000 |

Write a program to input the age, gender (male or female) and Taxable Income of a person.

If the age is more than 65 years or the gender is female, display "wrong category".

If the age is less than or equal to 65 years and the gender is male, compute and display the Income Tax payable as per the table given above. [15]

**Question 6.**

Write a program to accept a string. Convert the string to uppercase. Count and output the number of double letter sequences that exist in the string.

Sample input: "SHE WAS FEEDING THE LITTLE RABBIT WITH AN APPLE" [15]

**Question 7.**

Design a class to overload a function polygon() as follows :

(i) void polygon(int n, char ch) — with one integer argument and one character type argument that draws a filled square of side n using the character stored in ch.

(ii) void polygon (int x, int y) — with two integer arguments that draws a filled rectangle of length x and breadth y, using the symbol '@'

(iii) void polygon() — with no argument that draws a filled triangle shown below.

Example :

(i) Input value of n = 2, ch = 'O'

Output : OO  
OO

(ii) Input value of x = 2, y = 5

Output : @@@@  
@@@@

(iii) Output : \*

\*\*  
\*\*\*

[15]

**Question 8.**

Using the switch statement, write a menu driven program to :

- (a) Generate and display the first 10 terms of the Fibonacci series 0, 1, 1, 2, 3, 5...

The first two Fibonacci numbers are 0 and 1, and each subsequent number is the sum of the previous two.

- (b) Find the sum of the digits of an integer that is input.

Sample Input: 15390

Sample Output: Sum of the digits = 18

For an incorrect choice, an appropriate error message should be displayed.

[15]

### Question 9.

Write a program to accept the names of 10 cities in a single dimension string array and their STD (Subscribers Trunk Dialing) codes in another single dimension integer array. Search for a name of a city input by the user in the list. If found, display "Search Successful" and print the name of the city along with its STD code, or else display the message "Search Unsuccessful, No such city in the list".

[15]

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) int, short are primitive data types and array, classes are the examples of composite data types.

| Unary Operators                                                   | Binary Operators                                                |
|-------------------------------------------------------------------|-----------------------------------------------------------------|
| Operators that act on a single operand are called unary operators | Operators that act on two operands are called binary operators. |

- (c)

| Call by Value                                                       | Call by Reference                                                                                      |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| 1. The actual parameters are copied to the formal parameter.        | The actual parameters are not copied to the formal parameters. They are just referred by another name. |
| 2. Memory is allocated separately for actual and formal parameters. | The memory is not allocated separately for actual and formal parameters.                               |

- (d) Java expression :  
Math.sqrt(2 \* a \* s + Math.pow(u, 2));

- (e) (i) runtime error.  
(ii) logical error.  
(iii) syntax error.

#### Answer 2.

```
(a) class example
{
 int x;
 example()
 {
 x = 2;
 } // default constructor
 example(int x1)
 {
 x = x1;
 } //parameterized constructor
}
```

- (b) Scanner sc = new Scanner(System.in);

- (c) An array is a group of indexed data items of the same type that are referred by a common name.  
int n = new int [10];

- (d) (i) Selection sort.

- (ii) Binary Search.

| Private Modifier                                                    | Public Modifier                                                                |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 1. Private members of a class are accessible only within the class. | Public member of a class are available to all the classes of all the packages. |
| 2. Keyword private is used to declare a member as private.          | Keyword public is used to declare a member as public.                          |

#### Answer 3.

- (a) x = true.

y = 36.

- (b) n = 66;

ch = 'B';

- (c) x = 20

- (d) 2.0

3.0

- (e) false

true

- (f) (i) Float.parseFloat();

- (ii) Character.isUppercase();

- (g) a will be of int type, a = 2

b will be of boolean type, b = false

- (h) 0

8

- (i) int i = 1, f = 1;

while(i < 5)

{

f \*= i;

System.out.println(f);

i++;

}



- (j) (i) int n; (argument variable)  
 (ii) x = 7; (class variable)  
 (iii) a = 6; (local variable)  
 (iv) y = 2; (instance variable)

### SECTION-B

#### Answer 4.

```
import java.io.*;
class library
{
 int acc_num;
 String title;
 String author;
 void input()
 {
 BufferedReader Br = new Buffered
 Reader (new InputStreamReader
 (System. in));
 System.out.println("Enter accession no,
 title, author");

 acc_num = Integer.parseInt(br.readLine ());
 title = br. readLine();
 author = br.readLine();
 }
 void compute()throws IOException
 {
 BufferedReader Br = new BufferedRea-
 der(new Input StreamReader(System.in));
 System.out.println("No. of Days Late");
 int d = Integer.parseInt(br.readLine());
 System.out.println(d * 2);
 }
 void display()
 {
 System.out.println("Accession
 Num" + '\t' + "Title" + '\t' + "Author");
 System.out.println(Acc.num + '\t' + title
 + '\t' + Author);
 }
 void main()throws IOException
 {
 Library obj = new Library();
 obj.input();
 obj.compute();
 obj.display();
 }
}
```

| Name    | Type   | Description              |
|---------|--------|--------------------------|
| acc_num | int    | To store account number. |
| title   | String | To store title of book.  |
| author  | String | To store author name.    |

#### Answer 5.

```
import java.io.*;
class IncomeTax
{
 void main()throws IOException
 {
 BufferedReader br = new BufferedReader
 (new InputStreamReader(System.in));
 int age, I_Tax;
 String gender;
 double TI;
 System.out.println("Enter age, gender,
 taxable income");
 age = Integer.parseInt(br.readLine());
 gender = br. readLine();
 TI = Double.parseDouble(br.readLine());
 if(age > 65 || gender.equalsIgnoreCase
 ("female"))
 System.out.println("Wrong Category");
 else if(age <= 65 && gender.equals
 IgnoreCase("male"))
 {
 if (TI <= 160000)
 System.out.println ("Nil");
 else if (TI <= 160000 && TI <= 500000)
 I_Tax = (TI - 160000) * 0.10;
 else if(T1 > 500000 && TI <= 800000)
 I_Tax = (TI - 160000) * 0.20 + 34000;
 else if(T1 > 800000)
 I_Tax = (TI - 800000) * 0.30 + 940000;
 }
 System.out.println("IncomeTax" + I_Tax);
 }
}
```

| Name   | Type   | Description              |
|--------|--------|--------------------------|
| age    | int    | To store age.            |
| gender | String | To store gender.         |
| TI     | double | To store taxable income. |
| I_Tax  | int    | To store income tax.     |

**Answer 6.**

```

class str
{
 void main() throws IOException
 {
 int i, l, c = 0;
 char ch, ch1;
 BufferedReader br = new BufferedReader
 (new InputStreamReader(System.in));
 s = br.readLine();
 s = s.toUpperCase();
 l = s.length();
 for(i = 0; i < l; i++)
 {
 ch = s.charAt(i);
 ch1 = s.charAt(i + 1);
 if(ch == ch1)
 c++;
 }
 System.out.println(c);
 }
}

```

| Name    | Type | Description                |
|---------|------|----------------------------|
| c       | int  | To store counter value.    |
| l       | int  | To store length of String. |
| i       | int  | For loop counter.          |
| ch, ch1 | char | To store character.        |

**Answer 7.**

```

class overload
{
 void polygon(int n, char ch)
 {
 int i, j;
 for(i = 1; i <= n; i++)
 {
 for(j = 1; j <= n; j++)
 System.out.print (ch);
 }
 System.out.println();
 }
 void polygon(int x, int y)
 {
 int i, j;
 for(i = 1; i <= x; i++)
 {
 for(j = 1; j <= y; j++)
 {

```

```

 System.out.print ('@');
 }
 }
 System.out.println();
 }
}
void polygon()
{
 int i, j;
 for(i = 1; i <= 3; i++)
 {
 for(j = 1; j <= i; j++)
 {
 System.out.print(*);
 }
 System.out.println();
 }
}
}

```

| Name | Type | Description           |
|------|------|-----------------------|
| n    | int  | To store a string.    |
| ch   | char | To store a character. |
| i, j | int  | For loop counters.    |
| x, y | int  | To store numbers.     |

**Answer 8.**

```

import java.io.*;
class menu
{
 void main()
 {
 int ch, s = 0, n;
 BufferedReader br = new
 BufferedReader(new InputStreamReader
 (System.in));
 System.out.println("1. Fibonacci");
 System.out.println("2. Sum of Digits
 of Number");
 System.out.println("Enter your choice");
 ch = Integer.parseInt(br.readLine());
 switch(ch)
 {
 case 1 : int f = 0, s = 1, t;
 System.out.print(f + '\t' + s);
 for (i = 1; i <= 8; i++)
 {
 t = f + s;
 System.out.print("\t" + t);
 f = s;
 s = t;
 }

```

```

case 2 : System.out.println("Enter
 Number to get the sum of digits");
 n = Integer.parseInt
 (br.readLine());
 while(n != 0)
 {
 s = s + n % 10;
 n = n/10;
 }
 System.out.println("sum of the
 digits"+s);
default : System.out.println
 ("enter correct choice");
 }
}
}

```

| Name | Type | Description                                 |
|------|------|---------------------------------------------|
| n    | int  | To store a number.                          |
| ch   | char | To store the choice.                        |
| f, s | int  | To store intermediate values of series.     |
| t    | int  | To store sum of last two numbers of series. |

**Answer 9.**

```

import java.io.*;
class citySTD
{
 void main(String args[])
 throws IOException
 {
 String [] city = new String[10];
 String [] stdcode = new String[10];
 int i, result = 0;
 String c;
 BufferedReader br = new BufferedReader
 (new InputStreamReader
 (System.in));
 }
}

```

```

System.out.println("Enter 10 City Names");
for(i = 0; i < 10; i++)
{
 city[i] = br.readLine();
}
System.out.println("Enter 10 STD Codes");
for(i = 0; i < 10; i++)
{
 stdcode[i] = br.readLine();
}
System.out.println("Enter city to Search");
c = br. readLine();
for(i = 0; i <= 10; i++)
{
 if(city[i].equals(c))
 {
 System.out.println ("Search Successful"
 + city[i] + city[i] + "Std :" + stdcode [i]);
 result = 1;
 break;
 }
}
if(result == 0)
 System.out.println("Search
 Unsuccessful, No such city in the list");
}
}

```

| Name       | Type   | Description               |
|------------|--------|---------------------------|
| city[]     | String | To store city names.      |
| stdcodes[] | String | To store std codes.       |
| i          | int    | For loop counter.         |
| result     | int    | To store indicator value. |
| c          | String | To store city to search.  |

## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions.

#### Question 1.

- (a) What is the difference between an object and a class ? [2]
- (b) What does the token 'keyword' refer to, in the context of Java ?  
Give an example for keyword. [2]
- (c) State the difference between entry controlled loop and exit controlled loop. [2]
- (d) What are the two ways of invoking functions ? [2]
- (e) What is the difference between / and % operator ? [2]

#### Question 2.

- (a) State the total size in bytes, of the arrays `a[4]` of char data type and `p[4]` of float data type. [2]
- (b) (i) Name the package that contains Scanner class.  
(ii) Which unit of the class gets called, when the object of the class is created ? [2]
- (c) Give the output of the following :  
`String n = "Computer Knowledge.";`  
`String m = "Computer Applications";`  
`System.out.println(n.substring(0, 8).concat(m.substring(9)));`  
`System.out.println(n.endsWith("e"));` [2]
- (d) Write the output of the following :  
(i) `System.out.println(Character.isUpperCase('R'));`  
(ii) `System.out.println(Character.toUpperCase('j'));` [2]
- (e) What is the role of keyword `void` in declaring functions? [2]

#### Question 3.

- (a) Analyse the following program segment and determine how many times the loop will be executed and what will be the output of the program segment ?  
`int p = 200;`  
`while(true)`  
{  
    `if(p < 100)`  
        `break;`  
    `p = p - 20;`  
}  
`System.out.println(p);` [2]

- (b) What will be the output of the following code ?

(i) `int k = 5, j = 9;`  
`k += k++ - ++j + k;`  
`System.out.println("k = " + k);`  
`System.out.println("j = " + j);` [2]

(ii) `double b = -15.6;`  
`double a = Math rint(Math.abs(b));`  
`System.out.println("a = " + a);` [2]

- (c) Explain the concept of constructor overloading with an example. [2]
- (d) Give the prototype of a function `search` which receives a sentence **sentnc** and a word **word** and returns 1 or 0? [2]

- (e) Write an expression in Java for :

$$z = \frac{5x^3 + 2y}{x + y}$$
 [2]

- (f) Write a statement each to perform the following task on a string :

(i) Find and display the position of the last space in a string `s`.

(ii) Convert a number stored in a string variable `x` to double data type. [2]

- (g) Name the keyword that :

(i) informs that an error has occurred in an input/output operation.

(ii) distinguish between instance variables and class variables. [2]

- (h) What are library classes ? Give an example. [2]

- (i) Write one difference between Linear Search and Binary Search. [2]

### SECTION-B (60 Marks)

Attempt any **four** questions from this Section.

#### Question 4.

Define a class called **mobike** with the following description :

Instance variables/data members :

`int bno` – to store the bike's number

`int phno` – to store the phone number of the customer

`String name` – to store the name of the customer.

`int days` – to store the number of days the bike is taken on rent.

`int charge` – to calculate and store the rental charge.

Member methods :



`void input()` – to input and store the detail of the customer.

`void compute()` – to compute the rental charge.

The rent for a mobike is charged on the following basis :

First five days                      ₹ 500 per day.

Next five days                      ₹ 400 per day.

Rest of the days                      ₹ 200 per day.

`void display ()` – to display the details in the following format :

Bike No. Phone No. Name No. of days Charge

.....

[15]

**Question 5.**

Write a program to input and store the weight of ten people. Sort and display them in descending order using the selection sort technique.

[15]

**Question 6.**

Write a program to input a number and print whether the number is a special number or not.

(A number is said to be a special number, if the sum of the factorial of the digits of the number is same as the original number).

**Example :** 145 is a special number, because

$$1! + 4! + 5! = 1 + 24 + 120 = 145$$

(Where ! stands for factorial of the number and the factorial value of a number is the product of all integers from 1 to that number, example  $5! = 1 * 2 * 3 * 4 * 5 = 120$ ).

[15]

**Question 7.**

Write a program to accept a word and convert it into lowercase if it is in uppercase, and display the new word by replacing only the vowels with the character following it.

**Example :**

Sample Input : computer

Sample Output : cpmptftr.

[15]

**Question 8.**

Design a class to overload a function `compare()` as follows :

(a) `void compare(int, int)` — to compare two integer values and print the greater of the two integers.

(b) `void compare(char, char)` — to compare the numeric value of two characters and print the character with higher numeric value.

(c) `void compare(String, String)` — to compare the length of the two strings and print the longer of the two.

[15]

**Question 9.**

Write a menu driven program to perform the following: (Use switch – case statement)

(a) To print the series 0, 3, 8, 15, 24 ... n terms (value of 'n' is to be an input by the user).

(b) To find the sum of the series given below :  
 $S = 1/2 + 3/4 + 5/6 + 7/8 \dots 19/20$ .

[15]

**ANSWERS****SECTION-A****Answer 1.**

| (a) | Class                                                                                                                                  | Object                                                                                                                |
|-----|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|     | Class is a set of objects that shares common characteristics and behaviour. It is also known as object factory or producer of objects. | Object is an identifiable entity with some characteristics and behaviour. It is also known as an instance of a class. |

(b) Refer to ICSE Paper 2016, Answer 1(b).

| (c) | Entry Control Loop                                                                                                                                                         | Exit Control Loop                                                                                                                                                        |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | The loops in which condition is checked first and then the loop body gets executed are called entry control loops. They are also called pre tested loops e.g.: for, while. | The loops in which loop body gets executed first and then the condition is checked are called exit control loops. They are also called post tested loops e.g.: do-while. |

(d) Refer to ICSE Paper 2017, Answer 2(b).

(e) Refer to ICSE Paper 2017, Answer 1(d).

**Answer 2.**

(a) a[4] will occupy  $2 * 4 = 8$  Bytes

p[4] will occupy  $4 * 4 = 16$  Bytes

(b) (i) Refer to ICSE Paper 2015, Answer 3(g)(ii),

(ii) Constructor is called automatically when the object of the class is created.

(c) ComputerApplications

true

(d) (i) true      (ii) J

(e) At the time of function declaration void signifies that the function has no return type, that means the function will not return any value.

**Answer 3.**

(a) The loop will execute 7 times and the output will be 80.

(b) (i) k = 6

j = 10

(ii) 16.0

## SECTION-B

- (c) Defining more than one constructor having the same name but different signature is called constructor overloading.

e.g. :

class Rectangle

```
{
 int l, b;
 public Rectangle()
 {
 l = b = 0;
 }
 public Rectangle(int x)
 {
 l = b = x;
 }
 public Rectangle(int l1, int b1)
 {
 l = l1;
 b = b1;
 }
}
```

- (d) `int search(String sentnc, String wrd)`
- (e) `z = (5 * Math.pow(x, 3) + 2 * y) / (x + y);`
- (f) (i) `int index, pos;`  
`index = s.lastIndexOf(' ');`  
`pos = index + 1;`  
`System.out.println("Position is" + pos);`  
(ii) `double a = Double.parseDouble (x);`
- (g) (i) throws  
(ii) static
- (h) The classes which are already built in java are called library classes. These classes are grouped together and stored in packages. e.g.: Math, String, StringBuffer, Scanner etc.
- (i)

| Linear Search                                                                             | Binary Search                                                                                                                                           |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| In linear search the search element is compared with each and every element of the array. | In binary search the search element is compared with the middle element of the array. The searched element will exist only in either half of the array. |

## Answer 4.

```
import java.io.*;
class MoBike
{
 String name;
 int bno, phno, days, charge;
 public MoBike()
 {
 name = "Rahul Sharma";
 bno = phno = days = charge = 0;
 }
 void input()throws IOException
 {
 BufferedReader br = new Buffered
 Reader(new InputStreamReader
 (System.in));
 System.out.println("Enter name");
 name = br.readLine();
 System.out.println("Enter Bike no.");
 bno = Integer.parseInt(br.readLine());
 System.out.println("Enter Phone no.");
 phno = Integer.parseInt(br.readLine());
 System.out.println("Enter days");
 days = Integer.parseInt(br.readLine());
 }
 void compute()
 {
 if(days >= 1 && days <= 5)
 {
 charge = days * 500;
 }
 else if(days > 5 && days <= 10)
 {
 charge = 5 * 500 + (days - 5) * 400;
 }
 else
 {
 charge = 5 * 500 + 5 * 400 + (days
 - 10) * 200;
 }
 }
 void display()
 {

```

```

System.out.println("Bike No." '\t' + "Phone
No." + '\t' + "Name" + '\t' + "No. of days"
'\t' + "Charges");
System.out.println(bno + '\t' + phno + '\t' +
name + '\t' + days + '\t' + charge);
}
}

```

| Name   | Type   | Description                |
|--------|--------|----------------------------|
| name   | String | To store the name.         |
| bno    | int    | To store book number.      |
| phno   | int    | To store the phone number. |
| days   | int    | To store number of days.   |
| charge | int    | To store rental charge.    |

**Answer 5.**

```

import java.io.*;
class Sort
{
 int A[] = new int[10];
 int i, j, t;
 void display()throws IOException
 {
 BufferedReader br = newBuffered
 Reader (new InputStreamReader
 (System.in));
 for(i = 0; i < 10; i++)
 {
 System.out.println("Enter Weight");
 A[i] = Integer.parseInt(br. readLine());
 }
 for(i = 0; i < 10 - 1; i++)
 {
 int min_index = i;
 for(j = i + 1; j < 10; j++)
 {
 if(A[i] < A[j])
 {
 t = A[i];
 A[i] = A[j];
 A[j] = t;
 }
 }
 }
 }
}

```

```

for(i = 0; i < 10; i++)
{
 System.out.println(A[i]);
}
}

```

| Name | Type | Description                   |
|------|------|-------------------------------|
| A[]  | int  | To store weight of 10 people. |
| i, j | int  | For loop counters.            |
| t    | int  | For temporary value.          |

**Answer 6.**

```

import java.io.*;
class Special
{
 int s = 0, n, r, f, i, t;
 void check()throws IOException
 {
 BufferedReader br = new Buffered
 Reader(new InputStreamReader
 (System.in));
 System.out.println("Enter a no.");
 n = Integer.parseInt(br.readLine());
 t = n;
 while(n > 0)
 {
 r = n % 10;
 f = 1;
 for(i = 1; i <= r; i++)
 {
 f = f * i;
 }
 s = s + f;
 n = n/10;
 }
 if(s == t)
 {
 System.out.println("Special no.");
 }
 else
 {

```

```

 System.out.println("Not a Special
 no.");
 }
}

```

| Name | Type | Description             |
|------|------|-------------------------|
| n    | int  | To store a number.      |
| r    | int  | To store remainder.     |
| i    | int  | For loop counter.       |
| t    | int  | To store a number.      |
| f    | int  | To store the factorial. |
| s    | int  | To store the sum.       |

**Answer 7.**

```

import java.io.*;
class Change
{
 String s, s1 = "";
 int i, l;
 char ch;
 void change()throws IOException
 {
 BufferedReader br = new
 BufferedReader(new
 InputStreamReader(System.in));
 System.out.println("Enter a string");
 s = br.readLine();
 s = s.toLowerCase();
 l = s.length();
 for(i = 0; i < l; i++)
 {
 ch = s.charAt(i);
 if(ch == 'a' || ch == 'e' || ch == 'i'
 || ch == 'o' || ch == 'u')
 {
 ch = (char)(ch + 1);
 }
 s1 = s1 + ch;
 }
 System.out.println("New Word is " + s1);
 }
}

```

| Name | Type   | Description                                         |
|------|--------|-----------------------------------------------------|
| s    | String | To store a string.                                  |
| s1   | String | To store the resultant string.                      |
| i, l | int    | For loop counter and to store length of the string. |
| ch   | char   | To store a character.                               |

**Answer 8.**

```

class Overload
{
 void compare(int a, int b)
 {
 if(a > b)
 {
 System.out.println(a);
 }
 else
 {
 System.out.println(b);
 }
 }
 void compare(char a, char b)
 {
 if((int)a > (int)b)
 {
 System.out.println(a);
 }
 else
 {
 System.out.println(b);
 }
 }
 void compare(String a, String b)
 {
 if(a.length() > b.length())
 {
 System.out.println(a);
 }
 else
 {
 System.out.println(b);
 }
 }
}

```

| Name | Type   | Description          |
|------|--------|----------------------|
| a, b | int    | To store numbers.    |
| a, b | char   | To store characters. |
| a, b | String | To store strings.    |



**Answer 9.**

```

import java.io.*;
public class Menu
{
 int i, ch, n, x;
 double s = 0;
 void display() throws IOException
 {
 BufferedReader br = new Buffered
 Reader(new InputStreamReader
 (System.in));
 System.out.println("Enter 1. To Print
 the Series");
 System.out.println("Enter 2. To Print
 the sum of Series");
 System.out.println("Enter Your Choice");
 ch = Integer.parseInt(br.readLine());
 switch(ch)
 {
 case 1: System.out.println
 ("Enter a no.");
 n = Integer.parseInt(br.
 readLine());
 for(i = 1; i <= n; i++)
 {

```

```

 x = i * i - 1;
 System.out.print(x + ",");
 }
 break;
 case 2: for(i = 1; i <= 19; i++)
 {
 s = s + i/(i + 1);
 }
 System.out.print(s);
 break;
 default: System.out.println("Wrong
 Choice");
 break;
 }
 }
}

```

| Name | Type   | Description                          |
|------|--------|--------------------------------------|
| n    | int    | To store value of n.                 |
| x    | int    | To store each element of the series. |
| s    | double | To store sum.                        |
| ch   | int    | To store the choice.                 |
| i    | int    | Loop variable.                       |

GURUKUL

## QUESTIONS

**(Two hours)**

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answer.

**Attempt all questions from Section A and two question from Section B.**

The intended marks for questions or parts of questions are given in brackets [ ].

### SECTION-A (50 Marks)

Attempt **all** questions from this Section

#### Question 1.

- (a) What are the various career options in Physical Education? [2]
- (b) What do you mean by Growth? [2]
- (c) State any three objectives of sports training. [3]
- (d) Enlist the six components of physical fitness. [3]

#### Question 2.

- (a) Write the full form of ACL and MCL. [2]
- (b) What is flexibility? [2]
- (c) Write any three reasons to stress the importance of physical fitness. [3]
- (d) What are the preventive measures to avoid injuries in sports? [3]

#### Question 3.

- (a) What is a balanced diet? [2]
- (b) What is agility? [2]
- (c) Write any three differences between growth and development. [3]
- (d) What is sprained ankle? [3]

#### Question 4.

- (a) What is the difference between Balance and Accuracy? [2]
- (b) Write any four objectives of Physical Education. [2]
- (c) State the importance of Health education. [3]
- (d) What do you mean by speed? [3]

#### Question 5.

- (a) Enlist all the body types. [2]
- (b) Define the term nutrition. [2]

- (c) Explain the progression and overload as a principle of sports training. [3]

- (d) What is a tennis elbow injury? [3]
- What form of first aid can be given to a person suffering from a tennis elbow injury?

### SECTION-B (50 Marks)

Attempt **two** questions from this Section.

You must attempt **one** question on each of the **two** games of your choice.

#### CRICKET

#### Question 6.

- (a) Explain the following terms in Cricket: [8]
  - (i) Bump ball
  - (ii) Dead ball
  - (iii) Batting order
  - (iv) A night watchman
- (b) (i) Explain a 'declaration' in a test match. [9]
- (ii) State the duties of the Match referee.
- (iii) Explain the term Danger area.
- (c) (i) Explain the terms boundary for four and boundary for six. [8]
- (ii) Mention any four instances when the umpire calls for a No ball.

#### Question 7.

- (a) Briefly explain the following terms in Cricket: [8]
  - (i) A tie match
  - (ii) A golden duck
  - (iii) A hook shot
  - (iv) A scorer
- (b) (i) State any three conditions when runs are added to the team's total score and not to the batsman's total runs. [9]
- (ii) Name the different types of matches played in cricket.
- (iii) Mention three situations when a team's innings is said to be complete.
- (c) (i) What is meant by the term 'Timed out'? [8]
- (ii) Name any two National tournaments in the game of Cricket.
- (iii) Explain the term 'run out'.
- (iv) Name any two international tournaments in the game of Cricket.

**FOOTBALL****Question 8.**

- (a) Explain the following terms in Football : [8]  
 (i) A chest trap  
 (ii) A nutmeg  
 (iii) Quarter circle  
 (iv) Wall Pass
- (b) (i) Write down the rules related to kicks from the penalty mark. [9]  
 (ii) Mention any three circumstances when time is lost or wasted during the course of play and that is added at the end of each playing session  
 (iii) What is a 'Technical area' in Football? State the importance of technical area.
- (c) Draw a diagram of a Football field and mark the following with measurements: [8]  
 (i) A touch line  
 (ii) A goal line  
 (iii) A goal area  
 (iv) A penalty area  
 (v) A centre circle  
 (vi) A corner arc  
 (vii) A penalty mark and penalty arc  
 (viii) Optional mark

**Question 9.**

- (a) Briefly explain the following terms in Football. [8]  
 (i) Added time  
 (ii) Attacker  
 (iii) Goal-line technology  
 (iv) Man to man.
- (b) (i) State the three methods of restarting a game in football.  
 (ii) Name any three national tournaments in Football.  
 (iii) Explain the terms Cross and Chip. [9]
- (c) (i) Explain the term 'Step over' in Football. [8]  
 (ii) Give the full form of AIFF and IFAB.  
 (iii) What is meant by the term 'advantage' in Football?  
 (iv) What are the basic skills of football?

**HOCKEY****Question 10.**

- (a) Explain the following terms in Hockey: [8]  
 (i) A penalty spot  
 (ii) A reverse flick  
 (iii) A 16 yard hit  
 (iv) Tackle
- (b) (i) List any six basic equipment worn by a hockey goalkeeper. [9]  
 (ii) What is meant by 'centre pass' in Hockey?  
 (iii) Give three instances when the ball is declared out of play in a game of Hockey.

- (c) (i) State any four situations when a penalty corner is said to be complete. [8]  
 (ii) Mention four situations when a penalty stroke is awarded.

**Question 11.**

- (a) Briefly explain the following terms in Hockey. [8]  
 (i) Trapping  
 (ii) Under cutting  
 (iii) High stick  
 (iv) Through Pass
- (b) (i) State any three qualities of a goalkeeper in the game of Hockey. [9]  
 (ii) State the three responsibilities of an umpire in a game of hockey.  
 (iii) Mention six important positions of a player on the field
- (c) (i) What signals are given by the umpire for the following situations? [8]  
 1. A goal scored  
 2. A free hit  
 3. A stick obstruction  
 4. A foot fault  
 (ii) Write the full form of FIH and IHF.

**BASKETBALL****Question 12.**

- (a) Explain the following terms in Basketball: [8]  
 (i) A back court  
 (ii) Airball  
 (iii) One hand push pass  
 (iv) A fake
- (b) (i) What is understood by the term 'Dunk shot' in Basketball? [9]  
 (ii) State the three different points that can be scored after a basket. What are the conditions for each of these points?  
 (iii) What is unsportsmanlike foul? What is the penalty for it?
- (c) (i) Explain the term charge. [8]  
 (ii) Write the full form of FIBA and BFI.  
 (iii) What is a free throw?  
 (iv) Write the weight and circumference of the basketball.

**Question 13.**

- (a) Briefly explain the following terms in Basketball: [8]  
 (i) A double dribble  
 (ii) A post player  
 (iii) A rebounding.  
 (iv) A fast break.
- (b) (i) When is the clock stopped during a game of basketball? [9]  
 (ii) Explain the procedure of jump ball in Basketball.

(iii) Write any three duties of the Time keeper in Basketball.

- (c) Explain the following terms: [8]
- (i) Dribbling
  - (ii) Board – shot
  - (iii) Blocking
  - (iv) Time out

### VOLLEYBALL

#### Question 14.

- (a) Explain the following terms in Volleyball: [8]
- (i) A serving zone
  - (ii) A ball “in”
  - (iii) A joust
  - (iv) A libero
- (b) (i) Is hand passing over the net a fault? Explain. [9]
- (ii) List any three blocking faults in Volleyball.
  - (iii) List any three faults that a player is likely to commit while playing the ball.
- (c) (i) State any four duties of the second referee. [8]
- (ii) Write the full form of FIVB and VFI.
  - (iii) List the officials appointed to conduct a Volleyball match.

#### Question 15.

- (a) Briefly explain the following terms in Volleyball: [8]
- (i) Cross court attack
  - (ii) Two set
  - (iii) Trap set
  - (iv) Overlapping
- (b) Enumerate the duties of: [9]
- (i) A First referee
  - (ii) Assistant referee.
  - (iii) A Captain on the court.
- (c) (i) Explain how a set and a match is won by a team. [8]

(ii) Explain the following rules in Volleyball:

1. The ball in the net (Other than a service ball).
2. The ball sent into the opponent's court.

### BADMINTON

#### Question 16.

- (a) Explain the following terms in Badminton: [8]
- (i) A carry
  - (ii) A deuce
  - (iii) Rubber
  - (iv) A centre line
- (b) (i) Mention any three skills of a badminton player. [9]
- (ii) When is a shuttle not in play?
  - (iii) What are the types of games in badminton?
- (c) (i) Explain the term short serve in Badminton. [8]
- (ii) Explain the back hand grip in Badminton.
  - (iii) Write the full form of BWF and BAI.
  - (iv) Explain the term ‘lobbing’ in Badminton.

#### Question 17.

- (a) Briefly explain the following terms in Badminton: [8]
- (i) A half smash
  - (ii) A net kill
  - (iii) A clear lob
  - (iv) A lunge
- (b) (i) State any three duties of the referee in Badminton. [9]
- (ii) What is forecourt and backcourt in Badminton?
  - (iii) When do the players change the court in a Badminton game?
- (c) Explain the following terms: [8]
- (i) Follow throng
  - (ii) Service order
  - (iii) Alley
  - (iv) Flick

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) The various career options in Physical Education are:
1. Coach of various sports
  2. Physical education teacher
  3. Professional sportsperson
  4. Sports management professional
  5. Sports commentators
  6. Umpires, referees, and other sports officials.
- (b) In the words of Elizabeth Hurlock, “growth is change in size, in proportion, disappearance of old features and acquisition of new ones.”

Crow and Crow defined growth as “structural and physiological changes”. Growth is related to quantitative improvement which takes into account the increase in size and weight. Growth signifies the series of physical changes that occur from conception to maturity. It is external in nature and stops at a certain stage.

- (c) Following are the objectives of sports training:
1. Developing skills and fitness specific to a particular sport.
  2. Appreciating and being able to execute a strategic play.
  3. Enabling participation at a level appropriate to an individual's developmental stage.



(d) Physical fitness can be divided into two categories: health-related and motor-related.

(i) Health related fitness includes the following components:

1. Cardiovascular /Respiratory endurance
2. Stamina /Muscular endurance
3. Strength
4. Flexibility

(ii) Motor skill-related fitness includes the following components:

1. Power
2. Speed
3. Coordination
4. Agility
5. Balance
6. Accuracy

### Answer 2.

(a) The full form of ACL is Anterior Cruciate Ligament and MCL is Medical Collateral Ligament.

(b) Flexibility is the ability of each joint to move through the available range of motion. Flexibility decreases with increasing age and also due to a sedentary lifestyle. Without flexibility, the muscles and joints would grow stiff and movement would be limited. Improved flexibility helps to prevent injury.

(c) The importance of physical fitness is:

1. It reduces the risk of catching cold and upper respiratory tract infections.
2. It improves the overall productivity and quality of life.
3. It improves the emotional stability.

(d) The preventive measures to avoid injuries in sports are:

**1. Use and maintenance of correct equipment:** Equipment should be worn if the sport requires or demands it. It includes mouthpieces, shin pads, orthotics, and eye protection. The equipment should be carefully cleaned and maintained.

**2. Proper knowledge of the rules of the game or sport:** Each sport has its certain rules which its players should follow in order to prevent injuries. One of the purposes of the rules is to protect the athletes from injuring themselves and others during the game or sport.

**3. Rest between workouts:** The human body is capable of repairing its own tissues, but only if it gets proper rest time every day. An average athlete/trainee requires 8–10 hours of sleep each day to recuperate sufficiently for the next training session.

4. Wearing the recommended protective gear.
5. Supervision of coach or teacher.
6. Proper training of skill and technique.

### Answer 3.

(a) A balanced diet is the one which contains different types of food in such quantities and

proportion that the body's need for calories, proteins, minerals, vitamins, and other nutrients is adequately met and a small provision is made for extra nutrients to withstand the short duration of leanness.

(b) Agility is the ability of the body to change directions quickly.

(c)

| Growth                                                                                              | Development                                                                                            |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| The term is used in a purely physical sense. It generally refers to an increase in size and length. | It is a progressive series of changes that occur as a result of maturation and learning.               |
| Changes in the quantitative aspects come in the domain of growth.                                   | Changes in the quality or character come in the domain of development.                                 |
| It is a part of the developmental process.                                                          | It is a comprehensive and a wider term which refers to the overall changes occurring in an individual. |

(d) An ankle sprain is a common sports injury. It occurs when the ligaments that support the ankle are stretched beyond their limits and tear. The injury of ligaments of the ankle can be classified mainly into three types, depending upon the severity of the injury.

1. Grade 1 (Mild) Ligament Injury
2. Grade 2 (Moderate) Ligament Injury
3. Grade 3 (Severe) Ligament Injury

### Answer 4.

(a)

| Balance                                                                                                                                                                                                                                                                                                                                                                 | Accuracy                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Balance is the ability to maintain equilibrium in the body when stationary or moving. It is an ability to exercise precise control over the body's position and movement. Balance can be classified into two types: static and dynamic. Balance is important in sports such as dance, gymnastics, ice hockey, figure skating, and other sports require extreme control. | The ability to control the movements in a given direction or at a given intensity is known as accuracy. Examples of sports that require accuracy are football, basketball, hockey, pistol and rifle shooting, and archery. |

(b) The objectives of Physical Education are:

1. **Physical Development:** To provide the opportunities to enjoy a variety of physical activities and motivate participation in sports and recreation as lifelong pursuits.
2. **Psychological Development:** To develop acceptance of personal responsibility for one's actions.
3. **Social Development:** To develop sensitivity, understanding and appreciation of one's own culture as well as of others.
4. **Emotional Development:** To develop the ability to motivate oneself.

(c) The importance of Health education is as follows:

1. Health education provides a positive impact on academic achievement through health-friendly outcomes. Well-designed and well-delivered school-based health interventions can enable students to prevent diseases and injuries. This will allow the students to devote more attention and time to studies.
2. It promotes the proper use of available health services.
3. It enhances the quality of life for all people.
4. It plays a role in reducing premature deaths.
5. Helps to plan health education programs.
6. Helps to implement health education programs.

(d) Speed is a measure of the ability to move all or part of the body as quickly as possible. It is also described as the distance travelled in unit time. It requires to minimize the time cycle of a repeated movement. An individual who possesses speed can perform a movement in a short amount of time. Speed in thought is to be greatly influenced by genetics. There are five types of speed: reaction speed, movement speed, acceleration speed, sprint speed, and speed endurance. Examples of speed activities include a 100-metre run and a 200-metre run. The 50-Yard-run of the AAHPER test is used to measure speed.

#### Answer 5.

(a) The different body types are:

1. **Endomorph:** Ectomorphs are long and lean, with little body fat, and little muscle. They have a hard time gaining weight. Fashion models and basketball players fit this category.
2. **Mesomorph:** Mesomorphs are athletic, solid, and strong. They are not overweight and not underweight, and they can eat what they want without worrying too much about it. They both gain and lose weight without too much effort.
3. **Ectomorph:** Endomorphs, on the other hand, have lot of body fat, lot of muscle, and gain weight

easily. Football lineman tend to be endomorphs – they are heavier and rounder individuals, and they do not have to necessarily be overweight.

(b) Nutrition is the science of food. Diet is the kind of food that a person consumes according to his age and requirement. A healthy diet ensures a balance between the nutrient value he consumes and the energy he spends for muscular activity.

(c) For both physical and performance improvements to take place, training should become increasingly difficult and regular. When the amount of exercise is increased progressively, fitness continues to improve. This is the principle of progression. Too little exercise will have no effect on fitness (although it may improve health); too much may cause injury and problems with the body's immune or endocrine (hormone) systems. To increase strength and endurance, a learner needs to add new resistance, time, or intensity to his efforts. The basis of the overload principle is the idea that for training adaptations to occur, the muscle or physiological component under training must be exercised at a level that it is not normally accustomed to. For instance, to maximise muscular strength gains, the muscle needs to be stimulated with a resistance of relatively high intensity.

(d) Tennis Elbow is the inflammation of the tendons that join the muscle of the forearm to the outside of the elbow. It often occurs due to the overuse of the forearm muscle and tendon around the elbow joint. It is also known as lateral pain or lateral epicondylitis. Playing tennis or other racquet sports can cause this condition.

First aid which can be given to a person suffering from a tennis elbow injury is:

**First Aid:** It involves "P.R.I.C.E.R" (Protection, Rest, Ice application, Compression, Elevation, and Referral).

1. Protect the area from further injury.
2. Provide rest and stop using the injured part.
3. Apply ice over the affected area.
4. Compress the area and apply proper bandaging to avoid movement.
5. Elevate the injured part.
6. At last, refer the casualty to a competent doctor.

## SECTION-B

### CRICKET

#### Answer 6.

(a) (i) **Bump ball:** A ball which is played off the bat almost instantly into the ground and caught by a fielder, often having the appearance of being a clean catch.

- (ii) **Dead Ball:** If the umpire has to signal dead ball to prevent the players from assuming that the ball is still alive, he waves both arms across each other in front of his abdomen.
- (iii) **Batting order:** It is the order in which the players come to bat on the field from the batting team. The batting order of each team must be on the score sheet lineup card and must be presented before the game start by the captain and manager.
- (iv) **Night Watchman:** A batsman who comes in to bat out of order towards the end of a day's play in a multi-day game, in order to 'protect' better batsman.
- (b) (i) **Declaration:** It is done when the captain of a side declares an innings closed if he feels he will win. Mostly declares when their score is above 500. The captain of the side batting may declare an innings closed, when the ball is dead, at any time during the innings. A declared innings shall be considered to be a completed innings.
- (ii) Match referee watches the match from outside the field. The referee makes no decisions of relevance to the outcome of the game, but determines penalties for breaches of various rules and misconduct. In professional games, these penalties are monetary fines.
- (iii) **Danger Area:** A rectangular protected area of the pitch on which bowlers may not run in their follow through so as to avoid damage. Under the Laws of Cricket, a bowler must avoid running on this area during his follow-through after delivering the ball.
- (c) (i) **Four runs:** If a batsman hits the ball so that it reaches the boundary fence, he scores four runs, without needing to actually run them.
- Six runs:** If a batsman hits the ball over the boundary on the full, he scores six runs. If a four or six is scored, the ball is completed and the batsmen cannot be run out.
- (ii) **Following are the three instances when umpire calls for a no ball :**
1. The bowler must bowl each ball with part of his front foot behind the popping crease. If he oversteps this mark, he has bowled a no ball.
  2. When a bowler bowls the ball above the waist height of the batsman, directly without pitching it.
  3. When more than allowed fielders, moves out of the 30 yards circle, when the ball is bowled, it is a no ball.
- Answer 7.**
- (a) (i) **A Tie Match:** If the score of both the teams becomes equal after completing all the innings, the result of the match is considered to be a tie.
- (ii) **A Golden Duck:** When a batsman gets out while facing the first delivery of the innings.
- (iii) **A Hook shot:** Hook shot is one in which the shot is played against a ball bouncing at or above chest high to the batsman.
- (iv) **A Scorer:** A scorer in the sport of cricket is someone appointed to record all runs, all wickets taken and number of over's bowled.
- (b) (i) Only runs scored from the bat count to the batsman, but to the side's score may be added the following extras:
1. Byes (when a ball from the bowler passes the wicket without being touched by the bat and the batsmen are able to make good a run).
  2. Leg byes (when in similar circumstances the ball has touched any part).
- (ii) The different types of matches played in cricket are:
1. **One-Day Cricket:** One-day cricket differs significantly from first class cricket. A one-day match is played on a single day. Either a red or a white cricket ball may be used, and play under artificial lighting is allowed.
  2. **First Class Cricket/Test matches:** First class cricket matches are the most prestigious games, played at a professional level and played between countries. There are also domestic first class cricket competitions. First class matches are of limited duration. Test matches are never played under artificial lighting.
  3. **4-day Test match:** The International Cricket Council granted its permission allowing South Africa and Zimbabwe to play the first-ever four-day Test Match in Port Elizabeth, December 26, 2017.
  4. **T-20:**
    - (a) Each side bats for 20 overs.
    - (b) A match lasts 3 hours, with 20-minute break between innings.
    - (c) The incoming batsman gets only 90 seconds to face the next ball. Teams sit in dugouts near the boundary instead of the pavilion when the match is in progress.
    - (d) In the first six overs, only two fielders can be placed outside the 30-yard circle. For the remaining 14 overs, not more than five fielders will be outside the circle.
  5. **Indian Premier League (IPL):** There will be a requirement of at least 16 players in every IPL team. Every squad needs one purgative, a trainer and two characters who belong to BCCI under-22 group. In a squad at least eight hometown players and maximum four international players.



The number of international players in a squad is unable to surpass 10. It's to be stated that minimum 7 bowlers would be there for the entire 20 over match and of these 7, 6 would be bowling for three overs each and the last would bowl in the rest 2 overs.

(iii) In cricket, a team's innings ends in one of the following ways:

1. The team batting last scores the required number of runs to win.
2. The game runs out of time and so finishes as a draw.
3. The set number of overs (sets of deliveries) have been bowled (in limited overs cricket).

(c) (i) **Timed out:** If a new batsman takes longer than two minutes, from the time the previous wicket falls, to appear on the field.

(ii) National Tournaments in the game of cricket are:

1. **Ranji Trophy:** It is a domestic first-class cricket championship played in India between teams representing regional cricket associations. The trophy is named after England and Sussex cricketer Kumar Shri Ranjit Sinhji and was first played in 1934.

2. **Duleep Trophy:** It (named after KS Duleep sinhji) was started by the Indian board in 1961-62 as a zonal rather than a state first-class competition. The original format was that five teams, drawn from the five zones - North Zone, South Zone, East Zone, West Zone and Central Zone - played each other on a knock-out basis.

(iii) **Run Out:** If a batsman is attempting to take a run, or to return to his crease after an aborted run and a fielder breaks that batsman's wicket with the ball while he is out of the crease. The fielder may either break the wicket with a hand which holds the ball, or with the ball directly.

(iv) International Tournaments in the game of cricket are:

1. **ICC Cricket World Cup:** The ICC Cricket World Cup is the international championship of One Day International (ODI) cricket. The event is organised by the sport's governing body, the International Cricket Council (ICC), every four years, with preliminary qualification rounds leading up to a finals tournament.

2. **ICC Champions Trophy:** The ICC Champions Trophy is a one day international (ODI) cricket tournament organised by the International Cricket Council (ICC). It was inaugurated as the ICC Knockouts Tournament in 1998 and has been played approximately every four years since then.

Its name was changed to the Champions Trophy in 2002.

## FOOTBALL

### Answer 8.

(a) (i) **Chest trap:** The first necessity of the game is to stop and keep under control a fast coming ball. Chest trap is stopping the ball by the chest.

(ii) **Nutmeg:** When a player intentionally plays the ball between an opponent's legs, runs past the opponent, and collects their own pass.

(iii) **Quarter circle:** An arc with a radius of 1 yard located at each of the 4 corners of the soccer field.

(iv) **Wall Pass:** A movement in which one player passes the ball to another and sprints forward to receive the quickly played return.

(b) (i) Kicks from the penalty mark are taken after the match has ended and unless otherwise stated, the relevant laws of the game apply.

### Procedure

1. The kicks from the penalty mark are not a part of the match.

2. The penalty area where the kicks from the penalty marks are taking place may be changed only if the goal or the playing surface becomes unusable.

3. Once all eligible players have taken a kick from the penalty mark, the same sequence does not have to be followed as in the first round of kicks.

4. Each team is responsible for selecting the players from those on the field of play at the end of the match and the order in which they will take the kicks.

5. A player other than the goalkeeper who is injured may not be substituted during the taking of kicks from the penalty mark.

6. If the goalkeeper is sent off during the taking of kicks from the penalty mark, he must be replaced by a player who finished the match.

7. A player, substitute or substituted player may be cautioned or sent off during the taking of kicks from the penalty mark.

8. The referee must not abandon the match if a team is reduced to fewer than seven players during the taking of kicks from the penalty mark.

9. If a player is injured or sent off during the taking of kicks from the penalty mark and the team has one player fewer, the referee should not reduce the number of players taking kicks for the other team. An equal number of players from each team is required only at the start of the taking of kicks from the penalty mark.



(ii) Time lost during the play:

1. In injury.
2. In substitution.
3. In fouls.

(iii) Technical areas may vary between stadia, for example in size or location, and the following notes are issued for general guidance.

1. The technical area extends 1 m (1 yd.) on either side of the designated seated area and extends forward up to a distance of 1 m (1 yd.) from the touch line.
2. It is recommended that markings are used to define this area.
3. The number of persons permitted to occupy the technical area is abide by the rules of the competition.

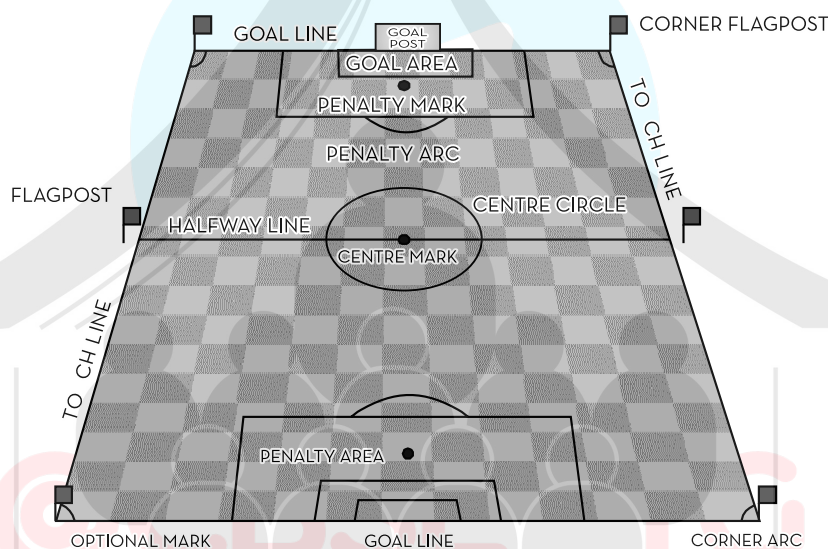
4. The occupants of the technical area are identified before the beginning of the match in accordance with the competition rules.

5. Only one person at a time is authorized to convey tactical instructions and he must return to his position after giving these instructions.

6. The coach and other officials must remain within the confines of the technical area except in special circumstances, for example, a physiotherapist or doctor entering the field of play, with the referee's permission, to assess an injured player.

7. The coach and other occupants of the technical area must behave in a responsible manner.

(c)



**Answer 9.**

(a) (i) **Added Time:** At the end of each half of 45 minutes, if the referee extends the period beyond the time it is called added time.

(ii) **Attacker:** A player whose job is to play the ball forward towards the opponent's goal area to create a scoring opportunity.

(iii) **Goal-Line Technology (GLT):** GLT systems may be used for the purpose of verifying whether a goal has been scored to support the referee's decision. The use of GLT must be stipulated in the respective competition rules.

(iv) **Man-to-man Marking:** It is a defence in which each player is assigned to defend and follow the movements of a single player on offence. It is more aggressive than zone defence.

(b) (i) Three methods of starting the game are:

1. **Throw-In:** A throw-in is a method of restarting play. A throw-in is awarded to the opponents of the player who last touched the ball when the

whole of the ball crosses the touch line, either on the ground or in the air.

2. **Goal Kick:** A goal kick is a method of restarting play. A goal kick is awarded when the whole of the ball, having last touched a player of the attacking team, passes over the goal line, either on the ground or in the air and a goal is not scored according to the rule.

3. **Corner Kicks:** A corner kick is a method of restarting play. A corner kick is awarded when the whole of the ball, having last touched a player of the defending team, passes over the goal line, either on the ground or in the air and a goal is not scored according to the rule.

(ii) National tournaments of the Football are:

1. **Santosh trophy:** The Santosh Trophy is the Indian National State Trophy which started in 1941. The trophy was donated by the Indian Football Association (IFA), the parent body of Bengal football, in the memory of late Maharaja Sir Manmatha Nath Roy Chowdhary of Santosh

## HOCKEY

(now in Bangladesh). The tournament is held every year with 31 teams who are divided into groups and who must qualify for the tournament proper through the preliminary round.

**2. Subroto Cup:** Subroto Cup Football Tournament is one of the famous inter school football tournament in India, named after the Indian Air Force Air Marshal Subroto Mukerjee. It started in 1960 and has been conducted every year annually since then.

**3. Federation Cup:** The Federation Cup, also known as Hero Federation Cup for sponsorship reasons, is an annual knockout style club football tournament in India that started in 1977. From its inception, until I-League was started in 1997 (then called NFL), it was the most prestigious national level club football tournament in India.

**(iii) Chip:** High trajectory shot, hit with the intention of the ball going over the goalkeeper and into the goal.

**Cross:** A pass played across the face of a goal.

**(c) (i) Step over:** Skill move performed by an attacking player in which the player with the ball will move their foot over the ball without making contact with it.

**(ii)** The full form of AIFF and IFAB are:

All India Football Federation (AIFF)

International Football Association Board (IFAB)

**(iii) Advantage in Football:** It refers to a situation in which the referee calls "play on" despite a foul because the team that would be given a free kick already has the advantage of a scoring or passing opportunity.

**(iv)** Basic skills of football are:

**1. Passing:** The first requirement of a good footballer is interlinked between players and accurate passing. A pass may be done by head or feet, over short or long distances, on the ground or in the air. The Pass is the basis of teamwork, knits the team together and promotes combination.

**2. Shooting:** Shooting is easily the most common way for goals to be scored. It is done using the feet, using the head, i.e. heading the ball, which is the second most common way in which goals are scored.

**3. Dribbling:** Dribbling is the skill of running with the ball at the feet. The player is speeding forward through open space, maneuvering out of tight situations and feinting to beat opponents.

**4. Receiving:** Receiving a ball on the ground is different than receiving a ball in the air.

## Answer 10.

**(a) (i) A Penalty spot:** Penalty spot is marked in front of the centre of each goal in the centre of each spot 6.40m from the inner edge of the goal-line.

**(ii) A Reverse Flick:** To turn the stick so that the blade points to the right, allowing a hit or push in that direction.

**(iii) 16 yard hit:** A 16 yard hit is a type of free hit, awarded for defence, when the ball goes wholly over the backline and the attacking team was the last to touch it in any way. It was taken in line with where the ball crossed the back-line, upto 14.63m from the backline.

**(iv) Tackle:** An action to stop an opponent retaining possession of the ball.

**(b) (i)** Goalkeeper is allowed to use Helmet; Shin guard; Elbow guards; Mouth guards; Gloves and Mask; Chest guards.

**(ii) Centre pass:** It is a pass from the centre of the field used to start or re-start the game.

A Centre pass is taken:

**1.** To start the match by a player from the team winning the toss if they choose this option, otherwise by a player from the opposing team.

**2.** To re-start the match after half-time by a player of the team which did not take the centre pass to start the match.

**3.** After a goal by a player of the team against which the goal was scored or awarded.

**(iii)** A ball is declared out of play in a game of Hockey when:

**1.** It touches a match official, remains on the field of play.

**2.** A team starts a promising attack.

**3.** The ball goes directly into the goal or the team in possession of the ball changes.

**(c) (i)** Three situations when a penalty corner is said to be complete are:

**1.** The penalty corner when a goal is scored.

**2.** When the ball after push crosses the shooting circle more than 5 mts.

**3.** When the ball is pushed from the corner point and it stops on shooting circle and after that it is hit and crosses goal line.

**(ii)** There are four occasions when a Penalty Corner can be awarded

**1.** When a player on defense intentionally hits the ball out of bounds over his teams back line.

**2.** When a defensive player commits an intentional foul inside the 22-meter line, but outside of the shooting circle.

3. When a defensive player commits an unintentional foul on an offensive player who does not have the ball or an opportunity to play the ball.

4. The ball becomes lodged in a player's clothing or equipment in the circle while they are defending.

#### Answer 11.

(a) (i) **Trapping:** Stopping the ball with the foot that is coming from the top of the foot either by a goalkeeper's kick or any kick that goes high and comes down.

(ii) **Undercutting:** Penalty for a hard swing of the stick under the ball to raise it into the air.

(iii) **High stick:** If a player's stick is raised over their waist when they contact another player it is known as high sticking and the player will incur a minor penalty.

(iv) **Through pass:** A pass that moves the ball forward to a teammate between defending players.

(b) (i) Qualities of the Goalkeeper in the game of hockey are:

1. The goalkeeper should be active, healthy and always ready.
2. He should be able to gain speed quickly.
3. He should be able to dive easily at every angle and maintain the speed and balance immediately.

(ii) Responsibilities of Umpires in the game of hockey are:

1. Each umpire has primary responsibility for decisions in one-half of the field for the duration of the match.
2. Each umpire is responsible for decisions on free hits in the circle, penalty corners, penalty strokes and goals in one-half of the field.
3. Umpires are responsible for keeping a written record of goals scored or awarded and of warning or suspension cards used.
4. Umpires are responsible for ensuring that the full time is played for indicating the end of time for each half and for the completion of a penalty corner, if a half is prolonged.

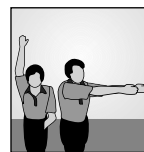
(iii) Position of the players on the field of play are:

1. Goal-keeper
2. Centre-Forward/ Full Backer
3. Mid-Fielder
4. Defender
5. Forwards
6. Sweeper.

(c) (i)

1.

Goal Scored



Point both arms horizontally towards the center of the field.

2.

Free hit



Indicate the direction with one arm raised horizontally and the open hand of face level.

3.

Obstruction



Hold crossed forearms in front of the chest.

4.



Foot

(ii) Full form of FIH and IHF are:

Federation International de Hockey (FIH)

Indian Hockey Federation (IHF)

#### BASKETBALL

#### Answer 12.

(a) (i) **Backcourt:** The backcourt represents half of the court that the team with the ball advances the ball from into the frontcourt. Once possession changes, the frontcourt becomes the other team's backcourt and vice-versa.

(ii) **Airball:** A shot at the basket that misses everything and does not touch the rim, backboard or net.

(iii) **One hand push pass:** It means to quickly pass the ball by pushing the ball so that the player closest to the basket is able to shoot and score.

(iv) **Fake:** A movement made with the aim of deceiving an opponent. This can be done with either a pass or a shot fake.

(b) (i) A slam dunk, also simply dunk, is a type of basketball shot that is performed when a player jumps in the air, controls the ball above the horizontal plane of the rim, and scores by putting the ball directly through the basket with one or both hands above the rim. ... Dunking was banned in the NCAA from 1967 to 1976.

(ii) There are also different points that can be scored after a basket:

1. A goal from a free throw counts one (1) point.
2. A goal from the two-point field goal area counts two (2) points.
3. A goal from the three-point field goal area counts three (3) points.
4. After the ball has touched the ring with a last or only free throw and if legally touched by an



offensive or defensive player before it enters the basket, the goal counts two (2) points.

(iii) An unsportsmanlike foul is a player's contact foul which, in the judgement of the official, is not a legitimate attempt to directly play the ball within the spirit and intent of the rules.

To judge whether a foul is unsportsmanlike, the officials should apply the following principles:

1. If a player is making no effort to play the ball and contact occurs, it is an unsportsmanlike foul.
2. If a player, in an effort to play the ball, causes excessive contact (hard foul), then the contact shall be judged to be unsportsmanlike foul.
3. If a player commits a foul while making a legitimate effort to play the ball (normal play), it is not an unsportsmanlike foul.

4. An unsportsmanlike foul shall be charged against the offender. Free throw(s) shall be awarded to the player who was fouled, followed by:

(a) A throw-in at the centre line extended, opposite the scorer's table.

(b) A jump ball at the centre circle to begin the first period.

5. The number of free throws shall be as follows:

(a) If the foul is committed on a player in the act of shooting: the goal, if made shall count and in addition, one free throw will be awarded.

(b) If the foul is committed on a player in the act of shooting who fails to score: two or three free throws will be awarded.

(c) (i) **Charge:** This is a penalty which occurs when an offensive player with the ball runs into a stationary defensive player and knocks him or her over.

(ii) The full form of FIBA and BFI are:

Federation of International Basketball Association (FIBA)

The Basketball Federation of India (BFI)

(iii) A free throw is an opportunity given to a player to score one point, uncontested, from a position behind the free-throw line and inside the semicircle.

(iv) Weight of the Basketball=600-650 g

Circumference of the Basketball=75-78 cm

### Answer 13.

(a) (i) **Double Dribble:** The act of dribbling the ball, stopping the dribble or motion of the ball and beginning to dribble again.

(ii) **A post player:** A post player is one who is close to the basket.

(iii) **Rebounding:** It means successfully gaining possession of the ball after a missed field goal or

free throw. Power forwards and centers do most of the rebounding for their team as they should be two tallest players in the team.

(iv) **Fast Break:** An offensive action where a team attempts to advance the ball and score as quickly as possible after a steal, blocked shot or rebound.

(b) (i) The clock is stopped during a game of basketball when the ball is dead.

(ii) Procedure of Jump ball in Basketball:

1. Each jumper shall stand with both feet inside the half of the centre circle nearest to his team's own basket with one foot close to the centre line.

2. The official shall then toss the ball upwards (vertically) between the two opponents, higher than either of them can reach by jumping.

3. The ball must be tapped with the hand(s) of one or both of the jumpers after it reaches its highest point.

4. The jumper shall not leave his position until the ball has been legally tapped.

5. If the ball is not tapped by at least one of the jumpers, the jump ball shall be retaken over the basketball court.

(iii) The duties of the Time keeper in Basketball are:

1. Measure playing time, time-outs and intervals of play.

2. Ensure that the game clock signal sounds very loudly and automatically at the end of a period.

3. Use any means possible to notify the officials immediately if his signal fails to sound or is not heard.

(c) (i) **Dribbling:** Bouncing the ball with one hand while walking, running or standing in one spot. One can change the hand used while dribbling after the ball bounces from the ground. It is the only legal method a basketball player can use to advance the ball by oneself.

(ii) **Board shot:** A board shot is one where the backboard is used as a deflecting tool that directs the basketball into the basketball hoop.

(iii) **Blocking:** It is the action of players, close to the net, to intercept the ball coming from the opponent by reaching higher than the top of the net, regardless of the height of the ball contact. Only front-row players are permitted to complete a block, but at the moment of the contact with the ball, a part of the body must be higher than the top of the net.

(iv) **Time out:** A period of sixty seconds during which the play is stopped and teams discuss strategy and a moment to allow players to rest.



## VOLLEYBALL

## Answer 14.

- (a) (i) A serving zone- Service zone refers to the region of the court area which is behind the back line that is used by servers to put the ball in play.
- (ii) A Ball "in": The ball is "in" when it touches the floor of the playing court including the boundary lines.
- (iii) A **joust**: When two opposing players contact the ball simultaneously above the net causing the ball to momentarily come to rest; the point is replayed if this is called by the official.
- (iv) A **Libero**: The libero is a player specialized in defensive skills. Each team has the right to designate from the list of players on the score-sheet up to two specialist defensive players.
- (b) (i) Contact with the net by a player is not a fault unless it is made during the action of playing the ball or it interferes with play. Some actions in playing the volleyball include actions where players do not actually touch the volleyball. Once the player has hit the volleyball, they may touch the post, rope, or any object outside the total length of the net as long as it does not interfere with play. When the ball is driven into the net and causes the net to touch an opponent, no fault is committed.
- (ii) Three Blocking Faults in Volleyball are:
1. **Block attempt**: A block attempt is the action of blocking without touching the ball.
  2. **Completed block**: A block is completed whenever the ball is touched by a blocker.
  3. **Collective block**: A collective block is executed by two or three players close to each other and is completed when one of them touches the ball.
- (iii) The faults committed by a player at the time of playing the ball:
1. **Four Hits**: A team hits the ball four times before returning it.
  2. **Assisted Hit**: A player takes support from a teammate or any structure/object in order to reach the ball within the playing area.
  3. **A catch**: The ball is caught and/or thrown, it does not rebound from the hit.
- (c) (i) Duties of the second referee are:
1. **At the beginning of the match**: At the start of each set, the change of courts in the deciding set and whenever necessary, he checks that the actual positions of the player on the court correspond to those on the line-up sheets.
  2. **During the Match**: They have a greater responsibility in calling a net touch or a player

crossing the line that separates the two halves of a court; when the net violations occur.

3. The positional faults of the receiving team.

4. **At the end of the Match**: He signs the score-sheet.

(ii) The full form of FIVB and VFI are:

FIVB- Federation of Internationale de Volleyball.

VFI- Volleyball Federation of India.

(iii) Officials appointed to conduct a volleyball match are:

1. Referee – 2 ( first referee and second referee)
2. Scorer – 2 ( first scorer and assistant scorer)
3. Line judges – 2 to 4.

## Answer 15.

(a) (i) **Cross-Court Attack**: An attack that is directed diagonally from the point of attack.

(ii) **Two set**: A vertical set that travels from 3 to 5 feet above the net. Usually set for the middle hitter.

(iii) **Trap set**: Set close to the net that gives the blocker the advantage.

(iv) **Overlapping**: Overlapping refers to the positions of the players in the rotation prior to the contact of the ball when serving.

(b) (i) Duties of the first referee

1. **Prior to the Match**

(a) Inspects the conditions of the playing area, the balls and other equipment.

(b) Performs the toss with the team captains.

(c) Controls the teams warming-up.

2. **During the Match**

(a) To issue warnings to the teams.

(b) To sanction misconduct and delays.

(c) Request to time-out.

(d) When the ball is dead and a double foul occurs.

(e) To decide upon the faults of the server and of the positions of the serving team, including the screen.

(e) The faults in playing the ball.

3. **At the end of the Match**

He checks the score-sheet and signs it.

(ii) Duties of the Assistant Referee

1. **At the beginning of the Match**: At the start of each set, the change of courts in the deciding set and whenever necessary, he checks that the actual positions of the player on the court correspond to those on the line-up sheets.

**2. During the Match**

(a) They have a greater responsibility in calling a net touch or a player crossing the line that separates the two halves of a court.

(b) When the net violations occur.

(c) The second referee is in charge of all substitutions, timeouts and the actions of the scorer's table.

**3. At the end of the Match**

He signs the score-sheet.

**(iii) Duties of captain on the court:****1. Prior to the Match**

(a) The team captain signs the score-sheet.

(b) He represents his team during the toss.

**2. During the Match**

(a) When the team captain is not on the court, the coach or the team captain must assign another player on the court (but not the libero) to assume the role of game captain. This game captain maintains his responsibilities until he is substituted or the team captain returns to play.

(b) He may ask authorisation from the referees to change uniforms or equipments.

(c) He submits to the referee involved the requests or questions properly submitted by his teammates during interruptions.

**3. At the End of the Match**

(a) Thanks to the referees and signs the score-sheet to ratify the outcome.

(b) If he previously submitted a protest to the first referee, he may confirm it in writing on the score sheet.

- (c) (i) A team wins a set if it scores 25 points and leads the other team by at least 2 points. If both the teams won two matches each, then the team that wins fifteen points and leads the other team by at least two points in the fifth deciding set wins the match.

**(ii) 1. Ball in The Net**

(a) A ball driven into the net may be recovered within the limits of the three team hits.

(b) If the ball rips the mesh of the net or tears it down, the rally is cancelled and replayed.

2. The ball sent to the opponent's court must go over the net within the crossing space. The crossing space is the part of the vertical plane of the net limited as follows:

(a) Below, by the top of the net.

(b) At the sides, by the antennae, and their imaginary extension.

(c) Above, by the ceiling.

(d) The ball that is heading towards the opponent's court through the lower space is in play until the moment it has completely crossed the vertical plane of the net.

**BADMINTON****Answer 16.**

(a) (i) **A Carry:** A return that is caught on the racket face and is slung or thrown over the net. It is sometimes referred to as a sling or a throw. This is a legal return as long as it is a continuation of the player's normal stroke and is not a double hit.

(ii) **A deuce:** If the score reaches 20-20, the game will be "deuce". This means that either one side must lead by 2 points to win the game.

(iii) **Rubber:** A rubber game is the third and deciding game in a badminton match. When both players won one set each, they will have to enter into a 3rd rubber or rubber game.

(iv) **A centre line:** Centre line divides the field of play into two equal halves by a halfway line.

(b) (i) Three skills of a badminton player are:

1. **Grip:** It is of the following type

(a) **Forehand Grip:** Hold the racket by the shaft in the left hand with the face of the racket perpendicular to the floor and shake hands with the grip. Slide your hand down so that the fatty part rest comfortably against the butt of the handle. There will be a 'v' shape of the thumb and index finger.

(b) **Backhand Grip:** For backhand grip, turn the top edge of the racket frame over slightly to the right and put the thumb along and parallel to the wide side of the handle. This grip allows a longer reach, more power and better accuracy.

2. **Footwork:** The pattern of movement for covering the corners inside the court.

3. **Serves:** It is of the following type:

(a) **High (Long) serve:** This is basic single's serve and directs the shuttle high and deep. The shuttle should turn over and fall as close to the back boundary line as possible.

(b) **Low (Short) serve:** In this serve, we use little or no wrist action, contact bird at thigh level push or guide the shuttle low, close to the net and finishes with racket following line of the bird's flight and the hips and shoulders rolling around.

(ii) The shuttle is not in play when:

1. A shuttle is not in play when it strikes the net or post and starts to fall towards the surface of the court on the striker's side of the net.

2. It is not in play when it hits the surface of the court.

3. It is not in play when a 'fault' or a 'let' has occurred.

(iii) The game involves the two opponents hitting the shuttlecock over the net into the other person's side. The rally ends when the shuttlecock touches the ground. Only one stroke is allowed to pass it over the net. One badminton match is made up of three games, of 21 points each. Professional badminton games are of five kinds: Men's singles, Men's doubles, Mixed doubles, Women's singles and Women's Doubles.

(c) (i) In the short serve, the player uses little or no wrist action, contact bird at thigh level push or guide the shuttle low, close to the net and finishes with racket following line of the bird's flight and the hips and shoulders rolling around.

(ii) In the Backhand grip turn the top edge of the racket frame over slightly to the right and put the thumb along and parallel to the wide side of the handle. This grip allows a longer reach, more power and better accuracy.

(iii) The full form of BWF and BAI are:

BWF- Badminton World Federation

BAI- Badminton Association of India

(iv) Lobbing is a stroke executed at the player's baseline, hitting the ball far to the back of the opponent court. Any good lob should be over the opponent's reach at mid court, hence pushing them to the back of the baseline.

#### Answer 17.

(a) (i) **A half smash:** Smashing without full power.

(ii) **A net kill:** Net kills area shots taken from the forecourt. It travel down steeply towards the opponent side. Usually, the net kills are used to counter weak net shots from the opponent.

(iii) **A clear lob:** Hitting the shuttle high up towards the opponent's baseline.

(iv) **A lunge:** It involves making one final large step. So, as to finish the movement of the player with his foot well away from his body, in a low posture with the lunging knee bent.

(b) (i) Duties of the Referee are:

1. To determine who gets the point.

2. The referee of a badminton game ensures fair and unbiased game play and to make the game as fair as possible.

3. The referee is directly in the middle of the court and watches out to see if the players touch the net with their racket or if someone hits it when it is on the other player's side with their racket over the net or to determine which side the shuttle lands on.

(ii) The front area of the court, usually considered in between the net and the short service line. Is known as the forecourt whereas Back area of the court is known as the Backcourt.

(iii) The service courts are changed by the servicing side only when a point is scored. In all other cases, the players continue to stay in their respective service court from where they played previous rally. This shall guarantee alternate server.

(c) (i) **Follow-through:** The smooth continuation of a stroke after the racket has contacted the bird.

(ii) **Service order:** The serve in the badminton is the most important and basic shot in the game of Badminton. Its order is determined in this way.

(iii) **Alley:** The area on each side of the court that is used for doubles. Often referred to as the "side alley".

(iv) **Flick:** A quick wrist-and-forearm rotation by changing an apparently soft shot into a faster shot.



GURUKUL

## QUESTIONS

### SECTION-A (50 Marks)

Attempt **all** questions from this Section

#### Question 2.

- (c) State any three causes of bad posture. [3]

### SECTION-B (50 Marks)

Attempt **two** questions from this Section.  
You must attempt **one** question on each of the **two** games of your choice.

#### CRICKET

#### Question 6.

- (a) Explain the following terms in Cricket : [8]  
(i) An over (ii) A wide ball  
(iii) An appeal (iv) A toss.
- (b) (i) What is meant by 'extra runs'? Give two examples of extra runs. [9]  
(ii) Draw a diagram of a Cricket Pitch and mark the following :  
1. The Bowling Crease 2. The Popping Crease  
3. The Return Crease  
(iii) List any three Protective Equipments used by the batsman.
- (c) (i) What do you understand by the term 'Follow on'? [8]  
(ii) State the restrictions on the role of a substitute.  
(iii) What do you mean by ball tampering?  
(iv) Explain the role of the Third Umpire in a match.

#### Question 7.

- (a) Explain the following terms in cricket: [8]  
(i) Straight drive (ii) Double-hit  
(iii) Catch out (iv) Clean bowled
- (b) (i) State any three duties of the Main Umpire in a cricket match. [9]  
(ii) Write any three fielding positions of "offside".  
(iii) Explain the term 'Full-toss' in Cricket.
- (c) (i) State any four instances when the ball is considered a 'dead ball'. [8]  
(ii) Answer the following with reference to cricket :  
1. Circumference of the ball.  
2. Widest part of cricket bat  
3. Breadth of stumps  
4. Size of the sight screen.

#### FOOTBALL

#### Question 8.

- (a) Explain the following terms in Football : [8]  
(i) Kicking (ii) Dribbling  
(iii) Tackling (iv) Trapping
- (b) (i) State any three duties of a match referee. [9]  
(ii) List the basic compulsory equipment used by a football player.  
(iii) What is the procedure adopted to restart the game from a throw in?
- (c) (i) When is the ball called out of play in Football? [8]  
(ii) Write the full form of FIFA.  
(iii) Answer the following :  
1. Radius of centre circle  
2. Minimum and maximum number of players to start a match.  
3. Height and width of the goal post.  
4. Distance of penalty mark from the goal line.

#### Question 9.

- (a) Answer the following : [8]  
(i) Length and breadth of the football field  
(ii) Length and breadth of the Penalty area  
(iii) Radius of Penalty arc and Corner arc  
(iv) Duration of a match and duration of extra time
- (b) (i) State any three duties of an Assistant referee [9]  
(ii) What is the procedure of resuming a game from a goal kick?  
(iii) Mention any three circumstances where the referee awards an indirect free kick against the goalkeeper.
- (c) (i) Explain the following : [8]  
1. A direct free kick 2. A through-pass  
(ii) State any four offences committed by a player within his own penalty area which warrants the award of a penalty kick.

#### HAND BALL

(Questions are not given due to change in present Syllabus).

#### HOCKEY

#### Question 12.

- (a) Explain the following terms : [8]  
(i) An obstruction (ii) Playing distance  
(iii) Tapping (iv) A suspension

\*\* Out of Syllabus questions are not given.



- (b) (i) What do you know about the shape, circumference and weight of a Hockey ball ? [9]  
 (ii) List the equipment which should be carried by the Umpire while conducting the match.  
 (iii) What is the duration of the game and interval ?

- (c) Draw a neat labelled diagram of the hockey field with its dimensions. [8]

**Question 13.**

- (a) Explain the following terms : [8]  
 (i) Flag-post (ii) A reverse hit  
 (iii) A bully (iv) A corner-push
- (b) (i) Mention three procedures to be followed while taking a 'Penalty Stroke'. [9]  
 (ii) List three instances wherein a 'Penalty Corner' is awarded.  
 (iii) What is understood by a 'manufactured foul'?
- (c) Explain the following terms in Hockey : [8]  
 (i) A warning (ii) A field goal  
 (iii) A push (iv) Side line

**BASKETBALL****Question 14.**

- (a) Draw a neat labelled diagram of basketball court with its dimensions. [8]
- (b) (i) What is a team foul ? [9]  
 (ii) Explain the term 'double foul' in a game of Basketball.  
 (iii) Explain in brief the term 'Held-Ball'.
- (c) Explain the following terms in Basketball : [8]  
 (i) Screening. (ii) A "5" second rule  
 (iii) A zone press (iv) A multiple foul

**Question 15.**

- (a) Explain the following terms : [8]  
 (i) A pivot foot (ii) A time out  
 (iii) A throw in (iv) Holding
- (b) (i) Explain in brief the term 'Jump ball'. [9]  
 (ii) How does a team advance with the ball in an attempt to score ?  
 (iii) List down the officials in the game of Basketball.
- (c) Write the following : [8]

- (i) An illegal screening (ii) A live-ball  
 (iii) A dead-ball (iv) A lay-up-shot

**VOLLEYBALL****Question 16.**

- (a) Explain the following terms : [8]  
 (i) Attack line (ii) A setter  
 (iii) Back zone (iv) A rotation
- (b) (i) When is a team compelled to substitute a player ? [9]  
 (ii) When do the teams change the court ?  
 (iii) What is the procedure adopted to start a game ?
- (c) Draw a neat diagram of a Volley Ball court and mark the following : [8]  
 (i) side line (ii) service line  
 (iii) attack line (iv) front zone  
 (v) back zone (vi) rotation position  
 (vii) height of the net (men) from the ground  
 (viii) size of the net

**Question 17.**

- (a) Explain the following terms in Volleyball : [8]  
 (i) An attack hit (ii) A foot fault  
 (iii) An ace (iv) A technical time-out
- (b) (i) State any three rules related to a 'Libero player'. [9]  
 (ii) Explain the term 'Triple block' in Volleyball.  
 (iii) What is a rally point ?
- (c) Answer the following : [8]  
 (i) Weight of the ball  
 (ii) Circumference of the ball  
 (iii) Number of players in a team  
 (iv) Length of service line  
 (v) Height of net for Men and Women  
 (vi) How many time outs are awarded to a team in a match ?  
 (vii) Duration of time out  
 (viii) Measurements of the free zone area.

**SOFTBALL**

(Questions are not given due to change in present Syllabus).

**ANSWERS****SECTION-A****Answer 2.**

- (c) Causes of bad posture are :

1. **Injury** : When a bone, ligament or muscle is injured, it is likely to weaken the support at that point and throw the framework out of balance. When such condition exists, it is not possible to have a perfect posture. Even after the injury has

fully healed, the habit developed during the injury may still persist and faulty posture may continue for a long time.

2. **Disease** : Posture is greatly affected by the disease that weakens the bones or the muscles or causes the joints to lose their strength of mobility. The examples of this kind of disease are rickets caused due to faulty nutrition of bone and tubercular disease of joints or vertebrae.

**3. Habit :** Habits or posture, whether good or bad are acquired in the same way as the habits of walking, speaking or sitting, *i.e.*, by practicing a certain type of coordination so many times that the act becomes unconscious and habitual. In case of school and college students, though the bones, joints, ligaments and muscles are in normal condition, but due to faulty and wrong habits, their coordination is disturbed, causing poor posture. Wrong habits of posture are also caused by occupation and environment as well.

**4. Occupation :** Certain occupations require sitting, standing or working in an imbalance or improper posture constantly for long hours, which may result in postural defects and deviations.

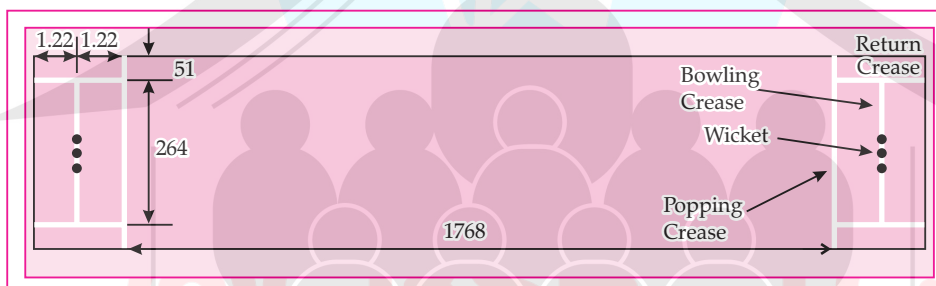
## SECTION-B

### Answer 6.

(a) (i) **An over :** When one bowler has completed six balls, that constitutes an over.

(ii) **Wide ball :** When the ball is delivered outside the wide line scoring an extra run for the batting

(ii)



(iii) Protective equipments used by the batsman are protective gear, shoes, chest-guard, elbow arm guard, abdomen guard, gloves, pads, helmets etc.

(c) (i) **Follow on :** It means the team who bat's first lets A scored 500 runs in the first innings and the opposition team lets B bat's did not achieve target either 300 run or above and all teams out so team A will impose the follow on and team B will immediately bat's second innings because not close enough to score and lead the team A and then team A will play for the lead.

When all the innings are completed, the team with the most runs wins. If there is a tie, the result stands as TIE means no win no lose.

If by the end of the final day's play all the innings are not completed, the game is a draw, no matter who appeared to be "winning". Thus the strategic importance of sometimes declaring an innings closed, in order to have enough time to dismiss the other team and so win the game.

(ii) A fielding team can use a substitute fielder if one of their team player has been injured during

side. An extra ball must be bowled for each wide ball.

(iii) **An appeal :** In the sport of cricket an appeal is the act of player of the fielding team asking an umpire for a decision regarding whether a batsman is out or not.

(iv) **A toss :** In cricket, the toss is the flipping of a coin to determine which captain will have the right to choose whether his team will bat or field at the start of the match.

(b) (i) Extra runs are runs scored by means other than when the ball is hit by a batsman. Extras are not credited to any batsman and are recorded by the scorer separately.

**Examples of extra runs :**

1. Byes (when a ball from the bowler passes the wicket without being touched by the bat and the batsman are able to make a run).

2. Leg byes (when in similar circumstances the ball has touched any part of the batsman's body except his hand.)

3. Wides (when a ball passes out of reach of the striker).

the course of a match. But substitute cannot be used in specialist positions, which mean he cannot bat, bowl or keep wicket. If the substitute fielder hangs onto a catch, it will go down as "caught sub" in the scorebook. However, a substitute cannot be used if a player wants to leave the pitch to change their equipment.

(iii) **Ball tampering :** It is an action in which a fielder illegally alters the conditions of the ball. The primary motivation of ball tampering is to interfere with the aerodynamics of the ball. Few ways of ball tampering are rubbing the ball on the ground, polish with substance like hair gel or lip balm.

(iv) **Duties of Third Umpire :**

1. He sits off the field, with a television replay monitor. If an on-field umpire is not sure of a decision concerning either a run out or a stumping attempt, he may signal umpire to view a television replay.

2. The third umpire views a replay, in slow motion if necessary, until he either decision or decides that he cannot make a clear decision. He signals

the result to the on-field umpire, who must then abide by it. If the equipment fails, the replay umpire signals no decision. The replay umpire cannot be used for any decisions other than run outs and stumping.

#### Answer 7.

(a) (i) **Straight Drive** : The straight drive is one of the most classical shots in a batsman's repertoire. It is usually played to a full length delivery on or outside off stump. Most of the work is done by the top hand, with the bottom hand lending support, to keep the ball along the ground.

(ii) **Double Hit** : It is a type of dismissal in which the batsman hits the ball twice, if the second strike is deliberate. There are two exceptions that allow a batsman to hit the ball on a second occasion : Protecting their wicket (*i.e.*, stopping the ball from rolling back on to the stumps) and returning the ball of the fielding team, with their permission.

(iii) **Catch Out** : A batsman is caught out when a fielder catches the ball directly off the bat, before it has hit the ground. The ball does not have to come directly off the bat.

(iv) **Clean Bowled** : If the wicket is put down without the batter making any sort of contact with the ball, then it is known as clean bowled with variations being 'bowled through the gate', where the ball travels between the bat and pad or 'bowled around the legs', where the ball goes behind (to the legside of) the batsman and hits the stumps.

(b) (i) **Duties of an Umpire :**

#### Before the commencement of the game :

1. To determine whether the pitch and ball used are up to the standard.
2. To observe the toss made between the captains of the two teams and the decision for batting or bowling first.
3. To check the bails and stumps are in their correct positions and the markings on the pitch are correct.

#### After the commencement of the game :

1. They make all decisions on the field and whose word is absolutely final. One umpire stands behind the non-striker's wicket, ready to make judgements on LBW's and other events requiring a decision.
2. The other umpire stands in line with the striker's popping crease, about 20 m to one side (usually the leg side, but not always) ready to judge stumping and run outs at his end.
3. To ensure fair play and without partiality.

4. To signal no balls, wide, byes, leg byes, boundaries and sixes.

5. It is the umpire's duty to interfere in the case of time wasting, ball tampering and dangerous bowling.

6. It is the umpire's duty to take decision in case of bad weather or poor light.

7. The umpires remain at their respective ends of the pitch, thus swapping roles every over.

#### (ii) **Three fielding positions of offside are :**

1. **Point** : It is located square of the wicket on the off-side and have the responsibility of stopping forceful shots played off the back foot like the square cut. It is a very busy part of the cricket pitch to be fielding at.

2. **Cover** : This position is sometimes euphemistically referred to as very fine leg. Sweeper, an alternative name for deep cover, deep extra cover or deep midwicket (that is, near the boundary on the off side or the on side), usually defensive and intended to prevent a four being scored.

3. **Mid-off** : Long stop, who stands behind the wicket-keeper towards the boundary (usually when a wicket-keeper is believed to be inept; the position is almost never seen in professional cricket). This position is sometimes euphemistically referred to as very fine leg.

(iii) Full toss is a delivery that reaches the batsman without bouncing on the pitch. They are commonly greeted by a batsman, as they tend to be very easy to hit.

(c) (i) When the ball is considered to be a complete or dead ball :

1. The striker may attempt to hit the ball with his bat. If he misses the ball, the wicket-keeper will catch it and ball is completed.
2. If he hits the ball, the two batsmen may score runs. When the runs are completed, the ball is also considered completed.
3. A batsman is out.
4. The ball reaches the boundary and four runs or six runs are scored.
5. The umpire is satisfied that, with adequate reason, the batsman is not ready to receive the ball and makes no attempt to play it.
6. The ball lodges in the clothing or equipment of a batsman or the clothing of an umpire.

**Note** : Once the ball is dead, it is returned to the bowler for the next delivery. Between deliveries the batsman may leave their creases and confer with each other.

(ii) 1. **Circumference of the ball**

Between 22.4 – 22.9 cm



2. **Widest part of cricket bat**  
4.25 inches (108 mm).
3. **Breadth of stumps**  
22.8 cm
4. **Size of the sight screen**  
4.5 m × 4.5 m

**Answer 8.**

- (a) (i) **Kicking** : Kicking is to kick the ball. Kicking the ball may be done with power or with less power or medium power depending upon the purpose which is to be achieved. Parts of the foot used to Kick the football may be inside, outside, top (laces), heel, bottom. Kick is done to :

1. Give a shot pass
2. Give a cross
3. Clear
4. Place the ball in a vacant place.

(ii) **Dribbling** : Dribbling is the skill of running with the ball at your feet. The player is speeding forward through open space, manoeuvring out of tight situations and feinting to beat opponents. It is perhaps, the most expressive and exciting part of the game.

(iii) **Tackling** : This is to take away the ball from the opponent and to control the ball. For this, the player keeps the eyes on the ball and watch the speed, stride and proximity of the ball to the opponent. Tackle when the ball has just left the foot of the dribbler.

(iv) **Trapping the ball** : It is a skill performed by a player, whereupon the player uses their foot (or, less commonly, their chest or thigh) to bring an airborne or falling ball under control.

- (b) (i) **Duties of Referee**

**Before the match :**

1. He ensures that the player's equipment meets the requirement of law 4.
2. He ensures that any ball used, meets the requirements of law 2.
3. He ensures that no unauthorised persons enter the field of play.

**After the match :**

1. He enforces the laws of the game.
2. He acts as a timekeeper and keeps a record of the match.
3. He stops, suspends or terminates the match, at his discretion, for any infringements of the laws or for outside interference of any kind.
4. He punishes the more serious offence when a player commits more than one offence at the same time.

5. He acts on the advice of assistant referees regarding incidents that he has not seen.

**(ii) Basic compulsory equipment :**

The basic compulsory equipment of a player comprises the following separate items :

1. **A jersey or shirt with sleeves** : If undergarments are worn, the colour of the sleeve must be the same main colour as the sleeve of the jersey or shirt.
2. **Shorts** : If undershorts or tights are worn, they must be of the same main colour as the shorts.
3. **Stockings** : If tape or similar material is applied externally it must be the same colour as that part of the stocking it is applied to.
4. **Shinguards** : These are made of a suitable material (rubber, plastic or similar substances). These are covered entirely by the stocking and provide a reasonable degree of protection.
5. **Miscellaneous** : Modern protective equipment such as headgear, facemasks, knee and arm protectors made of soft, lightweight, padded material are not considered to be dangerous and are therefore permitted.
6. Footwear.

**(iii) Throw-in**

A throw-in is a method of restarting play. A throw-in is awarded to the opponents of the player who last touched the ball when the whole of the ball crosses the touch line, either on the ground or in the air.

**Procedure of throw-in**

- (a) **At the moment of delivering the ball, the thrower :**

1. Faces the field of play.
2. Has part of each foot either on the touch line or on the ground outside the touch line.
3. Holds the ball with both hands.
4. Delivers the ball from behind and over his head.
5. Delivers the ball from the point where it left the field to play.

(b) All opponents must stand no less than 2 m from the point at which the throw-in is taken.

(c) The ball is in play when it enters the field of play.

(d) After delivering the ball, the thrower must not touch the ball again until it has been touched by another player.

- (c) (i) The ball is called out of play in Football when:

1. It has wholly crossed the goal line or has touched the line.
2. Play has been stopped by the referee.



(ii) FIFA stands for "Federation Internationale de Football Association".

**(iii) 1. Radius of Centre Circle**

Radius is 9.15 m (10 yds)

**2. Minimum and maximum number of player to start a match**

A match is played by two teams, each with a maximum of eleven players, one must be the goalkeeper. A match may not start or continue if either team has fewer than seven players.

**3. Height and width of goalpost**

The distance between the inside of the posts is 7.32 m (8 yds) and the distance from the lower edge of the crossbar to the ground is 2.44 m (8 ft).

**4. Distance of penalty mark from goal line**

Distance is 11 m (12 yds)

**Answer 9.**

**(a) (i) Length and breadth of Football field**

Length (minimum 90m (100 yds) / maximum 120m (130 yds))

Breadth (minimum 45 m (50 yds) / maximum 90 m (100 yds))

**(ii) Length and breadth of Penalty area :**

Length (16.5 m (18 yds)) Breadth (40.32 m (44 yds))

**(iii) Radius of Penalty arc is 9.15 m (10 yds) from the Penalty mark on the penalty area breadth line and corner arc radius (1 m (1 yd)).**

**(iv) Duration of match and duration of extra time :**

A match lasts for two equal halves of 45 minutes which may only be reduced if agreed between the referee and the two teams before the start of the match and is in accordance with competition rules. Extra time is a two equal additional periods of play not exceeding 15 minutes each.

**(b) (i) Duties of Assistant Referee**

1. When the whole of the ball leaves the field of play.
2. Which team is entitled to a corner kick, goal kick or throw-in.
3. When a player may be penalised for being in an offside position.
4. When a substitution is requested.
5. When misconduct or any other incident occurs out of the view of the referee.
6. When offences have been committed whenever the assistants are closer to the action than the referee (this includes, in particular circumstances, offences committed in the penalty area).

7. Whether, at penalty kicks, the goalkeeper moves off the goal line before the ball is kicked and if the ball crosses the line.

**(ii) Goal kick**

A goal kick is a method of restarting play. A goal kick is awarded when the whole of the ball, having last touched a player of the attacking team, passes over the goal line, either on the ground or in the air and a goal is not scored according to the rule.

**Procedure**

1. The ball is kicked from any point within the goal area by a player of the defending team.
2. Opponents remain outside the penalty area until the ball is in play.
3. The kicker must not play the ball again until it has touched another player.
4. The ball is in play when it is kicked directly out of the penalty area.

**(iii) Three instances for awarding indirect kick against the goalkeeper are :**

An indirect free kick is awarded if a goalkeeper, inside their penalty area, commits any of the following offences :

1. Controls the ball with the hands for more than six seconds before releasing it.
2. Touches the ball with the hands after releasing it and before it has touched another player.
3. Touches the ball with the hands after it has been deliberately kicked to the goalkeeper by a team-mate.
4. Touches the ball with the hands after receiving it directly from a throw-in taken by a team-mate.

**(c) (1) Direct Free Kick**

A direct free kick or penalty kick is awarded to the opposing team if a player commits any of the following offences in manner considered by the referee to be careless, reckless or using excessive force :

1. Kicks or attempts to kick an opponent.
2. Trips or attempts to trip an opponent.
3. Jumps at an opponent.
4. Charges at an opponent.
5. Strikes or attempts to strike an opponent.
6. Pushes an opponent.
7. Tackles an opponent.

**A direct free kick is also awarded to the opposing team if a player commits any of the following three offences :**

1. Holds an opponent.
2. Spits at an opponent.
3. Handles the ball deliberately (except for the goalkeeper within his own penalty area).

**(2) A Through pass**

It is type of pass. The ball is sent from the back line or mid-field between opposing defenders and into open space for an attacker to run onto the ball and threaten goal.

**(ii) Offences committed by a player**

1. Kicks or attempts to kick an opponent.
2. Pushes an opponent.
3. Handles the ball deliberately.
4. Jumps at an opponent.

**Answer 12.**

(a) (i) **An obstruction** : Shielding the ball with the stick or any part of the player's body.

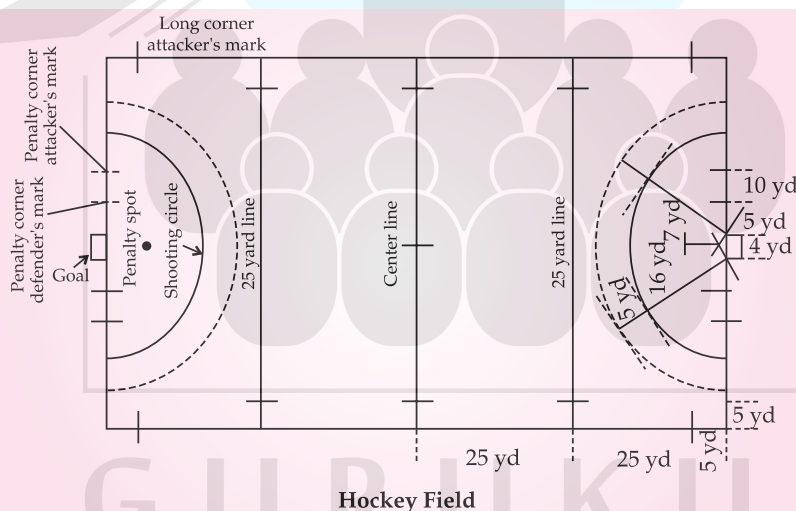
(ii) **Playing distance** : The distance within which a player is capable of reaching the ball to play it.

(iii) **Tapping** : It is a technique to pass the ball during the play by grounding the stick on the field.

(iv) **A suspension** : Violent actions such as kicking, hitting from behind and prohibited networks are penalised with suspensions or fines.

(b) (i) **Ball** : It is a hard spherical ball and made up of any material and coloured white (or an agreed colour which contrasts with the playing surface).

(c)

**Answer 13.**

(a) (i) **Flag-post** : Flag-post are placed at each corner of the field at a distance of 1 yard from the centre line and it must not be dangerous at the top. It must be made of metal except they are attached to a spring base. There are 10 flag-posts which are required in the field of play.

(ii) **A Reverse hit** : It means to hit the ball towards the right side to run without changing the position of the ball or body with the reverse side of the stick.

(iii) **Bully** : It is a call used to start or restart play. The referee puts the ball between two opposing

The ball is often covered with indentations to reduce aquaplaning that can cause an inconsistent ball speed on wet surfaces.

**Dimensions of Ball**

|                      |                 |
|----------------------|-----------------|
| Ball's weight        | 156 - 163 g     |
| Ball's circumference | 224 mm - 235 mm |

(ii) The equipments which should be carried by the umpire while conducting the match are :

1. A current book of Rules.
2. A loud distinctive whistle, worn on a cord, and a second or reserve whistle.
3. A stop watch and or a reliable watch with a second hand.
4. Two pencils.
5. A card on which to record the starting times of each half, any stoppages for which time must be allowed, the time of suspension of any player and the goals as scored.

(iii) The duration of the game is 60 minutes with four 15 minutes quarters, where there is a time-out for penalty-corner setup and goals. After the first and third quarters, the teams will have a two minute break, while the existing 10 minute half time is unchanged.

players. The players tap the flat sides of their sticks three times and go for the ball.

(iv) **A corner push** : It is a technique of attack, within the hockey field, when the ball is pushed involving the penalty corners.

(b) (i) **Three procedures followed while taking a penalty stroke are :**

1. Keep the ball stationary on penalty mark.
2. Except goal keeper no defender remains in the D or the shooting circle.
3. All the attackers except stroke player remain out of the shooting circle.

**(ii) Penalty corner is awarded :**

1. For an offence by a defender in the circle which does not prevent the probable scoring of a goal.
2. For an intentional offence by a defender outside the circle but within the 23 metres area they are defending.
3. For intentionally playing the ball over the back-line by a defender.

**(iii)** Play is often interrupted too many times during a game. Some of these interruptions result from offences which have been manufactured so that an opponent has been forced into unintentionally offending. Examples are :

1. Forcing an opponent into an obstructive position, often emphasised by running into an opponent or by waving the stick over an opponent's head. This action should be penalised.
2. Playing the ball clearly and intentionally into an opponent's foot, leg or body. In these cases

the umpire may decide to let play continue or penalise the player who played the ball into the opponent.

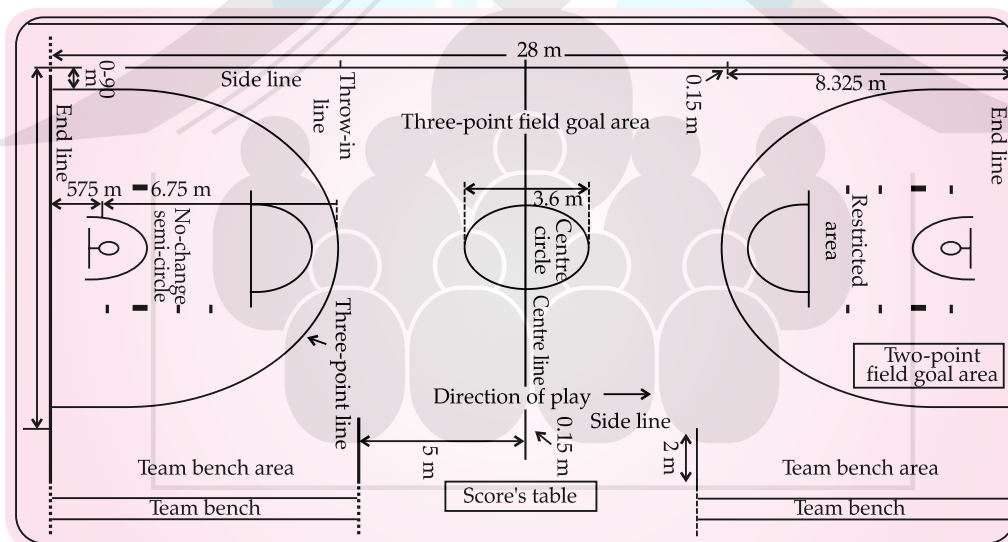
Umpires should be vigilant in observing manufactured fouls such as those described above and not be tempted to blow obstruction in the first instance and feet in the second. Applying these interpretations strictly will discourage players from attempting to manufacture fouls.

**(c) (i) Warning :** It is a line intended to get hockey player to keep their heads up around the boards.

**(ii) Field goal :** A field goal is a goal scored from open play and can only be scored from inside the 'striking circle', in front of the opponent's goal.

**(iii) Push :** The push is the best way to pass the ball over a distance of about 10 m-15 m. It is a quick and accurate way of getting the ball to the team-mate, and it is also an easy move to disguise.

**(iv) Side line :** The line that marks the length of the hockey field.

**Answer 14.****(a)****(b) (i) Team Foul**

A team foul is a personal, technical, unsportsmanlike or disqualifying foul committed by a player. A team is in a team foul penalty situation, when it has committed four team fouls in a period. All team fouls committed in an interval of play shall be considered as being committed in the following period or extra period. All team fouls committed in a extra period shall be considered as being committed in the fourth period.

**Rule**

1. When a team is in a team foul penalty situation, all subsequent player personal fouls committed on a player who is not in the act of shooting shall

be penalised by two (2) free throws, instead of a throw-in.

2. If a personal foul is committed by a player of the team in control of the live ball, or of the team entitled to the ball, such a foul shall be penalised by a throw-in for the opponents.

**(ii) Double Foul :** When two opponent players commit personal or technical foul against each other simultaneously.

**(iii) Held-ball :** When the ball is held by two different opponents at the same time.

**(c) (i) Screening :** Screening is an attempt to delay or present an opponent without the ball from reaching a desired position on the playing court.

(ii) **'5' Second rule** : When a player is being closely guarded who is holding the ball does not pass, or dribble the ball within 5 seconds it is violation with side lines throw for the opponents.

(iii) **A zone press** : Two players are placed at both ends of the free throw line and two defend inside the half court line and fifth player as prevent.

(iv) **Multiple foul** : Two fouls committed at the same time by opposing players against each other. The penalties offset one another, so the offense retains the possession of the ball and inbounds the ball from the sideline. Both players, however, are charged with personal fouls.

#### Answer 15.

(a) (i) **A pivot foot** : It is the technique in which a player keeps one foot in contact with a "spot" on the floor while moving the other foot to adjust the position of the body or to evade a defensive player.

A pivot foot, is the foot that cannot leave the ground. The only time player can lift the pivot foot at that moment is if the player decides to shoot or dribble.

(ii) **Time out** : A time out is an interruption of the game requested by the coach or assistant coach.

(iii) **A throw in** : A free throw is an opportunity given to a player to score one point, from a position behind the free throw line and inside the semicircle.

(iv) **Holding** : When the player who has possession on a live catch the ball with both hands after dribble is called holding. A player holds the ball for 5 sec.

(b) (i) A jump ball occurs when an official tosses the ball in the centre circle between any two opponents at the beginning of the first period.

#### Procedure :

1. Each jumper shall stand with both feet inside the half of the centre circle nearest to his team's own basket with one foot close to the centre line.
2. The official shall then toss the ball upwards (vertically) between the two opponents, higher than either of them can reach by jumping.
3. The ball must be tapped with the hand(s) of one or both of the jumpers after it reaches its highest point.
4. Neither jumper shall leave his position until the ball has been legally tapped.
5. If the ball is not tapped by at least one of the jumpers, the jump ball shall be retaken.

**Jump ball situations** : A jump ball situation occurs when :

1. A held ball is called.

2. The ball goes out-of-bounds and the officials are in doubt or disagree about which of the opponents last touched the ball.

3. A double free-throw violation occurs during an unsuccessful last or only free throw.

4. All periods other than the first period are to begin.

(ii) An offensive strategy in basketball in which a team attempts to advance the ball up court and move into scoring position as quickly as possible, so that the defense is out-numbered and does not have time to set up. Fast breaks are often the result of good defensive play such as a steal or a block, where the defending team takes possession of the ball while the other team has not adjusted.

(iii) The officials shall be a crew chief and 1 or 2 umpires and the table officials shall be a scorer, an assistant scorer, a timer and a shot clock operator.

(c) (i) **An illegal screening** : This is an offensive foul in basketball when the player who is setting the screen is still moving when they make contact with the defensive player.

Illegal screening is when the player who is screening an opponent :

1. Was moving when contact occurred.
2. Did not give sufficient distance in setting a screen outside the field of vision of a stationary opponent when contact occurred.
3. Did not respect the elements of time and distance of an opponent in motion when contact occurred.

(ii) **A live ball** : A live ball is one that is legally in play. The ball becomes live when (a) it leaves the referee's or umpire's hands on a jump ball, (b) during a throw-in, (c) when the referee or umpire places the ball at a free thrower's disposal for a free-throw attempt.

(iii) **A dead ball** : A dead ball is one that is not legally in play. A dead ball foul occurs in basketball when a foul is committed after the referee has whistled for play to stop or the ball has already been ruled dead, such as the ball going out of bounds. A dead ball foul is ruled either a technical foul or flagrant foul depending on how excessive the contact is.

(iv) **A lay-up shot** : A layup in basketball is a two-point shot attempt made by leaping from below, laying the ball up near the basket, and using one hand to bounce it off the backboard and into the basket. The motion and one-handed reach distinguish it from a jump shot. The layup is considered the most basic shot in basketball.

#### Answer 16.

(a) (i) **Attack line** : The attack line is drawn parallel to the net and divides the playing area into the back row (or back court) and front row (or front



court). The main purpose of the attack line is to mark where back row players can attack the ball.

## Measurements of line

|                            |                          |
|----------------------------|--------------------------|
| All the lines of the court | 0.05 m wide              |
| Centre line                | 9 m × 9 m                |
| Attack line                | 3 m from the centre line |

**(ii) A Setter :** The setter is in charge of the offense. He decides who should get the ball and when. It does not matter how good a team's hitters are, if it does not have a setter that can consistently deliver a good ball to hit.

(iii) **Back Zone** : Area between the attack line and the end line; it is usually occupied by the backs. The defense lines up in the remaining area of the court called the back zone, which is 6 m × 9 m. Though, while the game is in progress, the players obviously switch positions and move around even outside the court as and when required.

**(iv) Rotation :** The rotation order as recorded on the score sheet at the beginning of each set must remain the same throughout that set. When the team receiving the serve wins the rally or the opponent commits a fault, and the players must

be rotated one position clockwise. A different rotation order for each new set may be used by the team and any player recorded on the score sheet may be registered in the new starting lineup.

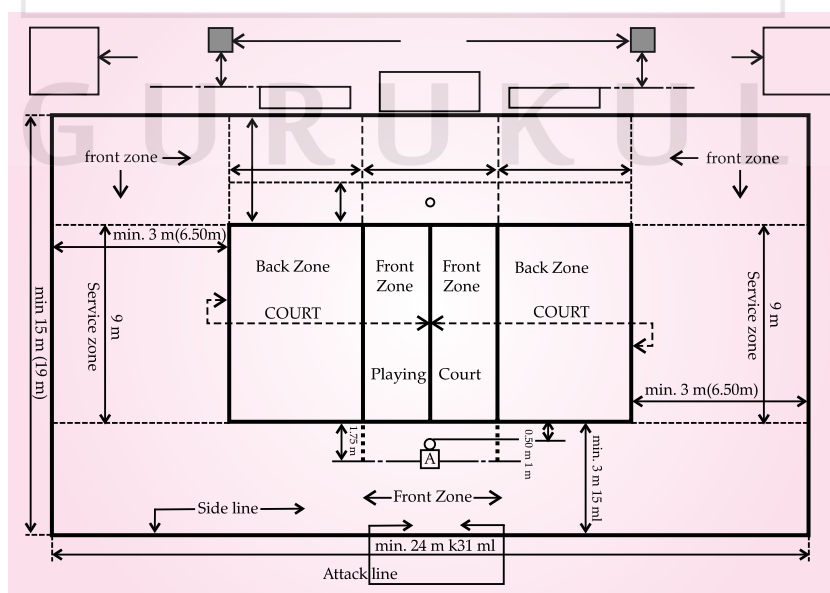
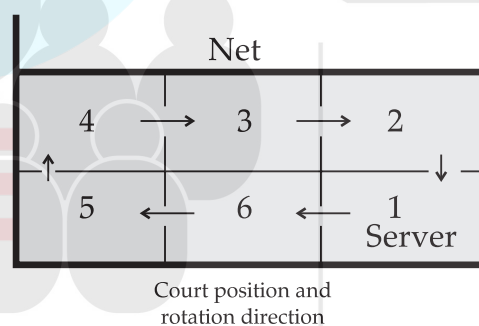
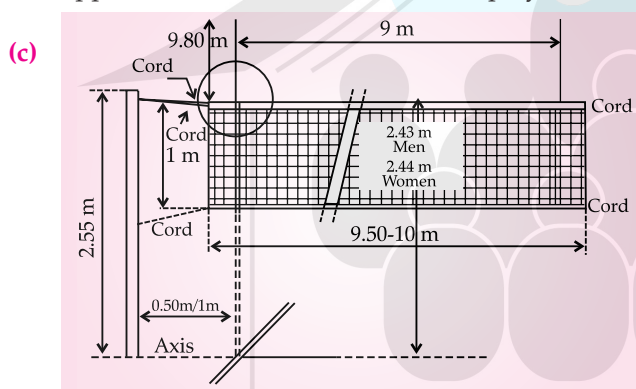
**(b) (i) When a team is compelled to substitute a player :**

1. An expelled player must be changed through a legal substitution and if this is not possible the team will be declared incomplete.
2. An injured player who cannot continue to play must be legally substituted.

(ii) The teams change the court :

1. After each set, the teams change courts, with the exception of the deciding set.
2. In the deciding set, once the leading team reaches 8 points, the teams change courts without delay and the player positions remain the same. Other team members change benches.

(iii) The game begins when the captain of the game decides on which side of the court they play by tossing a coin. The key rule of the game is to keep the ball in the air and could be hit with any part of the body. A maximum of three hits are only possible on each team to get the ball to the other side.



**Answer 17.**

(a) (i) **An attack hit** : An attack is any ball that is sent over the net to the opponent. An attack is an offensive action of hitting the ball, attempting to terminate the play by hitting the ball to the floor on the opponent's side or off the opponent's blockers.

(ii) **A foot fault** : An illegal placement of the feet with respect to court lines is foot faults. It is of three types : serving foot fault (server), serving foot fault (other players) and crossing the center line.

(iii) **An ace** : A serve that hits the floor in bounds, is shanked or cannot be handled by the receiving team, immediately resulting in a point for the serving team.

(iv) **Technical time-outs** : For FIVB world and official competitions, in set 1-4, two additional 60 second "technical time-outs" are applied automatically when the leading team reaches the 8th and 16th points. In the deciding (5th) set, there are no "technical time-outs", only two time-outs of 30 seconds duration may be requested by each team.

(b) (i)

1. The libero can replace any back-row player and has no right to complete an attack hit when the ball is above the height of the top of the net.

2. He may not serve, block or attempt to block.

3. If a libero sets the ball using overhand finger action while in the attack zone, any teammate who attacks that ball while it is above the height of the net is an illegal attacker.

(ii) When three players take part in a block. The hands of the blockers should be raised at one time and level. It raises a wide screen over the net.

(iii) **A rally point** : Since 1998, volleyball has been using a new scoring system. Teams scored a point on every rally (Rally Point System), regardless of which team served. Formerly, a team could only win a point if it served the ball. Winning the serve back from the opposition was known as a side-out.

Rally scoring is a system used in volleyball in which a point is scored on every single rally. It does not matter which team serves the ball; points can be scored by either the serving or the receiving team.

(c) (i) 260-280grams.

(ii) 65-67 cm

(iii) 12 Players

(iv) The service area is a 3 meter section at the right side of the back line at both ends of the court.

(v) Men : 2.43 mts. and Women-2.24 mts.

(vi) Two

(vii) 30 Sec.

(viii) Minimum 3 mts. wide on all sides.

••

GURUKUL

## QUESTIONS

### SECTION-A (50 Marks)

(Attempt **all** questions from this Section)

#### Question 3.

- (b) Define Posture. [2]

#### Question 5.

- (c) Mention any three causes of sports injuries. [3]  
 (d) Write the calories required for the following age groups: [3]  
 (i) A child aged 10 years.  
 (ii) An adult female (50 Kg).  
 (iii) An adult male with heavy sports activity.

### SECTION-B (50 Marks)

Attempt **two** questions from this Section.  
 You must attempt **one** question on each of the **two** games of your choice.

#### CRICKET

#### Question 6.

- (a) Explain the following terms in Cricket : [8]  
 (i) A bouncer (ii) Duck  
 (iii) A yorker (iv) A century.  
 (b) (i) Explain the term overthrow. [9]  
 (ii) Enumerate any three duties of a Leg Umpire.  
 (iii) Under which condition can an umpire declare bad light ?  
 (c) (i) State the full form of ICC and BCCI. [8]  
 (ii) When is a batsman considered to be out bowled ?  
 (iii) Explain the term Hat-trick.  
 (iv) What is the importance of the 30 yard circle ?

#### Question 7.

- (a) Explain the following terms in cricket : [8]  
 (i) Intentional Disturbance (ii) Timed-out  
 (iii) A stance (iv) A maiden over.  
 (b) (i) What is the rule of follow on in a five days test match ? [9]  
 (ii) State any three ways by which runs are scored.  
 (iii) Write down any three fielding positions of on side in cricket.  
 (c) (i) What is the difference between a bye and leg bye in cricket ? [8]

(ii) Answer the following :

- The length of the bat.
- The weight of the ball.
- Size of the bails.
- The height of the stumps.

#### FOOTBALL

#### Question 8.

- (a) Answer the following : [8]  
 (i) A free kick (ii) Heading (iii) Passing  
 (iv) Weight and circumference of football.  
 (b) (i) Explain the term off side. [9]  
 (ii) Give the proper procedure to replace a field player with a substitute player.  
 (iii) Mention any three instances for which a direct free kick is awarded.  
 (c) Draw a diagram of a football field showing all its dimensions. [8]

#### Question 9.

- (a) Explain the following terms in Football : [8]  
 (i) Kick-off (ii) Dropped ball  
 (iii) Injury time (iv) Extra time.  
 (b) (i) How is a goal scored in the game of football ? [9]  
 (ii) Give any three situations when a kick-off is applied.  
 (iii) Under which three situations is a player not considered Off-side ?  
 (c) (i) Under which four situations can a referee show a red card to a player ? [8]  
 (ii) Differentiate between Goal Kick and Corner Kick.

#### HANDBALL

(Questions are not given due to change in present Syllabus).

#### HOCKEY

#### Question 12.

- (a) Explain the following terms : [8]  
 (i) A long corner (ii) A raised ball  
 (iii) Astro turf (iv) Sudden death.  
 (b) (i) Explain the term corner push. [9]  
 (ii) Mention any three situations when a penalty stroke is awarded.  
 (iii) What are the basic compulsory equipment required by a player in Hockey ?

\*\* Out of Syllabus questions are not given.

- (c) (i) What is the procedure to resume the game when the ball is played over the back line unintentionally by a defender? [8]  
(ii) Name any four playing positions in the game of Hockey.

**Question 13.**

- (a) Explain the following terms : [8]  
(i) Side line hit (ii) Rolling substitution  
(iii) A corner (iv) A goal line.
- (b) (i) State the importance of the shooting circle in hockey. [9]  
(ii) Explain the term Dribbling.  
(iii) Write any three duties of a captain.
- (c) Explain the following : [8]  
(i) A ball out of play (ii) Advantage  
(iii) Yellow card (iv) Flick

**BASKETBALL**

**Question 14.**

- (a) Explain the following terms : [8]  
(i) A substitution (ii) A chest pass  
(iii) A held ball (iv) A jump ball
- (b) (i) Explain the term low dribble. [9]  
(ii) What do you mean by man to man marking?  
(iii) Mention any three duties of the scorer in a basketball match.
- (c) (i) State any four occasions when a ball becomes dead during the match. [8]  
(ii) Write the dimensions of:  
1. The length of the Basketball court.  
2. The breadth of the Basketball court.  
3. The radius of centre circle.  
4. The diameter of the ring.

**Question 15.**

- (a) Explain the following terms : [8]  
(i) A direct shot (ii) Charging  
(iii) A technical foul (iv) A team foul.

- (b) (i) Name any three time-rule fouls in basketball. [9]  
(ii) Name any three fouls which involve personal contact with the opponent.  
(iii) Name any three violations which are done without obstructing an opponent.
- (c) (i) What is intentional foul? What is the penalty for it? [8]  
(ii) What is the procedure applied to start the game?

**VOLLEYBALL**

**Question 16.**

- (a) Explain the following terms : [8]  
(i) Free zone (ii) Back line  
(iii) Antenna (iv) A catch.
- (b) (i) How many contacts are permitted in returning the ball over the net? Explain the procedure. [9]  
(ii) What is meant by the term libero?  
(iii) What do you mean by expulsion?
- (c) (i) Explain the procedure of substitution during the game. [8]  
(ii) Enumerate any four duties of the first referee.

**Question 17.**

- (a) Explain the following terms : [8]  
(i) A collective block (ii) Assisted hit  
(iii) Dead ball (iv) Time out.
- (b) (i) What is meant by ball in play? [9]  
(ii) What is 'screening'?  
(iii) List any three faults that a player is likely to commit while playing the ball.
- (c) Explain the following terms : [8]  
(i) A Side-out (ii) A Penalty  
(iii) Carrying the Ball (iv) A Penetration-fault.

**SOFTBALL**

(Questions are not given due to change in present Syllabus).

**ANSWERS**

**Answer 3.**

- (b) Posture is a sitting or standing position of a person's body. It is the characteristic way in which someone holds their body. The efficiency of body depends upon good posture. It is directly related to individual's health status. By good posture the various organs of the body get rest, the body does not get easily tired and the person stays fit.

**Answer 5.**

- (c) **Three causes of sports injuries are :**  
(i) Overtraining

- (ii) Poor equipment  
(iii) Improper warm-up  
(d) (i) 1600 calories per day.  
(ii) 2400 calories per day.  
(iii) Upto 3800 calories per day.

**Answer 6.**

- (a) (i) **A bouncer :** A bouncer is a type of delivery usually bowled by a fast bowler. It is pitched so that it bounces on the pitch well short of the batsman and rears up to chest or head height.



- (ii) **Duck** : When the batsman gets out without scoring any run, he is said to be out on duck.
- (iii) **Yorker** : A ball pitched very close to the batsman's crease.
- (iv) **A century** : It means a batsman scores 100 runs individually without getting out.
- (b) (i) When no fielder collects the ball thrown by fielder after fielding the ball hit by the batsman, and the runs scored thereon it is called overthrows.
- (ii) **Three duties of leg umpire are :**
1. To see the runout.
  2. Stumping decisions.
  3. To give decision on hit wicket.
- (iii) **The umpire can declare bad light under following conditions :**
1. Ground, weather or light are so bad that there is obvious and foreseeable risk to the safety of any player or umpire.
  2. If the natural light is deteriorating to an unfit level.
- (c) (i) **ICC** : International Cricket Council.  
**BCCI** : Board of Control for Cricket in India.
- (ii) **Bowled** is a method of dismissing a batsman. A batter is out bowled if his or her wicket is put down by a ball delivered by the bowler. It is irrelevant whether the ball has touched the bat, glove, or any part of the batsman before going on to put down the wicket.
- (iii) When a bowler takes three wickets on three consecutive deliveries that he bowled, he is said to have scored a hat-trick.
- (iv) In the limited over match, 30 yard circle is used for the restriction of fielding. In mandatory power play, two fielders remain outside and in batting power play, three fielders remain outside the 30 yard circle.

**Answer 7.**

- (a) (i) **Intentional disturbance** : Intentional disturbance means obstructing the field. It occurs when a player creates any disturbance knowingly on the ground or from outside the playing field.
- (ii) **Time out** : If a new batsman takes longer than two minutes, from the time the previous wicket falls, to appear on the field, it is called time out.
- (iii) **Stance** : Stance is a position in which a batsman stands, so as to prepare himself to face the incoming bowler.
- (iv) **A maiden over** : If a bowler completes an over without allowing batsmen to score any run, it is termed as a maiden over.
- (b) (i) In a two innings match of 5 day test match, the normal procedure says that the both teams bat

twice *i.e.*, they each have two innings, taking it in turns to do so. The team that bats first also bats third, whereas the team that bats second also has the fourth or last innings of the match. However, the follow-on rule can change this usual order of things.

If after the second innings, the team that batted second is 200 or more runs behind the team that batted first, then they can be asked to bat again. This is a follow-on. Suppose if the team batting first scored 400 and their opponents were bowled out for 199 then instead of the team batting first doing so again, the team batting second will take the third innings. Making their opponents follow-on is entirely up to the captain of the team batting first, they do not have to make them do so, but it is generally done if given the opportunity. If a team has bowled out their opponents for 200+ runs fewer than they managed, they could potentially do so again and can win the match having to bat once only.

**(ii) Three ways by which runs are scored :**

1. **Four runs** : If a batsman hits the ball so that it reaches the boundary fence, then he scores four runs without needing to actually run them.
2. **Six runs** : If a batsman hits the ball over the boundary on the full, he scores six runs.
3. **Byes** : If the striker misses a ball and the wicket-keeper fails to gather it cleanly, the batsmen may take runs. These runs are called byes and are scored as extras.

**(iii) 1. Gully, 2. Point, 3. Cover.**

- (c) (i) A bye is a run scored by the batting team when the ball has been hit neither by the batsman nor by the batsman's body. However, if the wicket-keeper fumbles or misses the ball, the batsmen may be able to score runs safely. These runs are scored as byes. They are added to the team's total, but not to the number of runs scored by either batsman.

A leg bye is a run scored by the batting team when the batsman has not hit the ball with his bat, but the ball has hit the batsman's body or protective gear. The number of runs scored are scored as leg byes. These runs are added to the team's total.

**(ii) 1. Length of bat : 95.6 cm (38 inch)****2. Weight of the ball : Between 156-163 g.****3. Size of bails : 11.1 cm****4. Height of stumps : 71.3 cm (28 inch)****Answer 8.**

- (a) (i) **A free kick** : A kick is awarded to a team resulting from an offense committed by the

opposition. It has to be taken from where the offense occurred.

**(ii) Heading :** Ball played by the head is known as heading.

**(iii) Passing :** Passing is a way of sending the ball by one player to the own team-mate.

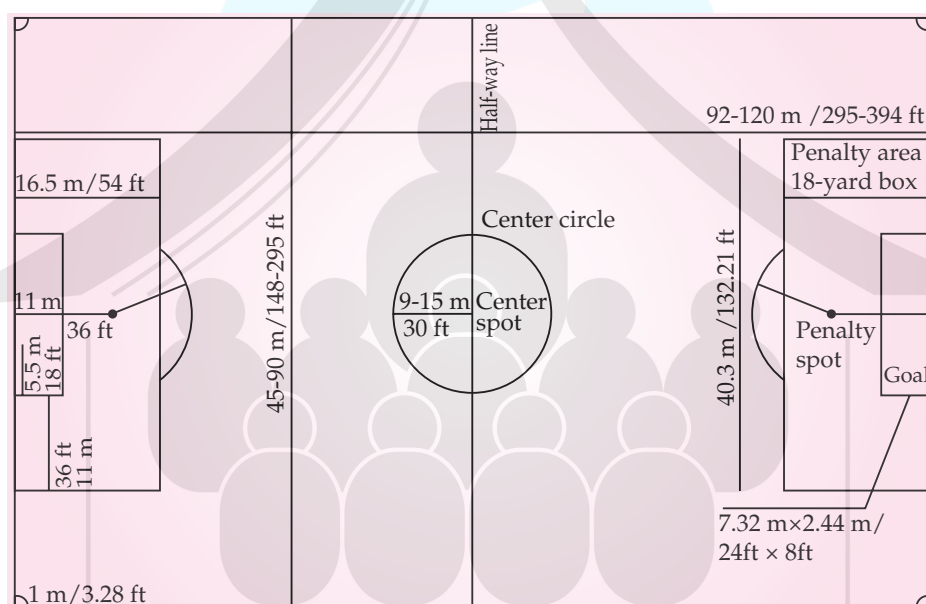
**(iv) Circumference :** 60 – 70 g

**Weight :** 410 – 450 g

**(b) (i)** An offender is said to be offside :

1. When he is moving towards the goal line of an opponent without a ball in the absence of at least two opponents.
2. When two of his opponents are nearer to their own goal lines.
3. When the ball last touched a rival or was last played by him.

**(c)**



**Answer 9.**

**(a) (i) Kick off :** A kick taken from the centre circle or centre point of the field to start the match after a toss, to resume play after scoring play by the offense or after half time, is known as kick-off.

**(ii) Dropped ball :** A dropped ball is a method of restarting play when, while the ball is still in play, the referee is required to stop the play temporarily for any reason not mentioned elsewhere in the laws of game.

**(iii) Injury time :** If a player is injured and there is stoppage in the game then the referee can add on some more time at the end of each half and this time is known as injury time. Its duration is approximately 3 minutes.

**(iv) Extra time :** It is an additional period played at the end of a match to allow the teams to achieve a conclusive result.

**(ii)** To replace a player with a substitute, the following procedure must be observed :

1. The referee must be informed before any substitution is made.
2. When the substitute is ready to enter the field of play, inform the referee.
3. Inform the referee of the player who is leaving the field.
4. The substitute waits until his player has left the field of play and then obtains the referee's permission to enter and join his colleagues on the field of play.

**(iii)** Three situations when a direct free kick is awarded are :

1. Jump at an opponent.
2. Charge an opponent.
3. Push an opponent.

**(b) (i) Goal scored :** When the live ball crosses the goal line under the cross bar and in between the goal post.

**(ii) Three situations when a kick-off is applied :**

1. At the start of the match.
2. After a goal has been scored.
3. At the start of second half of the match.

**(iii) 1.** At the time of penalty kick.

2. When the ball is in control of defending team.
3. When the player is in his own half of the field of play.

**(c) (i)** Situations under which referee can show a red card to a player are :

1. Violent conduct
2. Persistent infringement of laws of game.
3. A deliberate handling offense to deny an obvious goal-scoring opportunity by any player other than a goalkeeper in his own penalty area.

4. Receiving a second caution (yellow card) in the same game.

(ii)

| Goal kick                                                                                                                                                               | Corner kick                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. A goal kick is awarded when the ball having last touched a player of the attacking team, passes over the goal line and the goal is not scored according to the rule. | A corner kick is awarded when the ball, having last touched a player of defending team, passes over the goal line and the goal is not scored according to the rule. |
| 2. The ball is kicked from any point within the goal area by a player of the defending team.                                                                            | The ball has to be placed inside the corner arc near to the point where the ball crossed the goal line.                                                             |

**Answer 12.**

(a) (i) **A long corner** : It is awarded to the attacking team when the ball crosses the back time after deflecting from defender's stick. A long corner is taken from the corner of backline and side line.

(ii) **A raised ball** : Players are permitted to raise the ball with a flick or scoop provided it is not dangerous. Flicking, scooping and chipping the ball into the air are legal. The general rule is that the ball should not be lifted above the knee or 18 inches above the ground.

(iii) **Astro turf** : Astro turf is an artificial grass surface used for the hockey field (sports).

(iv) **Sudden death** : When no goal is scored after the tie breaker, then the sudden death is followed in which the teams are given penalty stroke alternatively till the tie is broken.

(b) (i) **A corner push** : It is a technique of attack within the hockey field in which a player pushes the ball with power so that it quickly reach to its team-mate.

(ii) Penalty stroke is awarded :

1. For an offence by a defender in the circle which does not prevent the probable scoring of a goal.

2. For an intentional offence by a defender outside the circle but within the 23 metres area they are defending.

3. For intentionally playing the ball over the back-line by a defender.

(iii) Basic equipments worn by a hockey player are :

1. Gloves

2. Mouth guard

3. Shin guard

4. Ankle guard

5. Cleat

6. Shoes

**Only a goal keeper is allowed to wear helmet.**

(c) (i) A free hit shall be taken from any spot within 16 yards of the inner edge of the defending team's back line on a line drawn through the place where the breach occurred and parallel to the side line.

(ii) **Playing positions in the game of hockey are :**

1. Midfield

2. Forwards

3. Fullbacks

4. Goalkeeper

**Answer 13.**

(a) (i) **Side line hit** : When the ball crosses the side line by a pass or a hit where it passes the line then it is called side line hit.

(ii) **Rolling substitution** : It is the continuous replacement of one player from another throughout the game, as long as each side has only 11 players on the field at once.

(iii) **A corner** : A corner is awarded to the attacking team when the ball crosses the back line after deflecting from defender's stick. A corner hit is taken from the corner of side line and back line.

(iv) **Goal line** : A goal line is a line in front of a goal post and in front of which a team attempts to advance the ball to score a point.

(b) (i) **Shooting circle** : Due to its shape, it is also called D. Importance of this circle in the game is that :

1. A goal can be scored within the D.

2. If any defender intentionally hits or push in this area, penalty stroke is awarded.

3. Intentional foul committed by defensive team in this circle leads to penalty corner.

(ii) **Dribbling** : Dribbling is running with the ball while shifting it right and left and keeping it in perfect control so as to pass it at any time or change its direction to beat a player.

(iii) Three duties of the captain are :

1. To ensure that all players are informed of meet times.

2. To confirm with the Umpires Secretary that an umpire is available for each fixture.

3. To motivate the team both on and off the field to, sometimes, be a spokesman for the team.

(c) (i) **A ball out of play** : The ball is out of play when it has wholly passed over the side line or back line on the ground or in the air.

(ii) **Advantage** : A call made by the referee to continue the game after a foul has been committed. Referee extends one arm high from the shoulder in the direction in which the benefiting team is playing.

(iii) **Yellow card** : A yellow card in the game of hockey indicates a temporary suspension of at



least 5 minutes. The length of the suspension is determined by the umpire. A player who receives two yellow cards in a single game is sent off and gets a red card.

(iv) **Flick** : Flick means to push the ball but at a low height only. It is used to pass the ball to a team-mate or place the ball into the goal.

#### Answer 14.

(a) (i) **A substitution** : It is replacing a player by a reserve player. A team may substitute a player during a substitution opportunity. It is a player who is in playing field to play in place of a player who have problem to play.

(ii) **A chest pass** : It is the pass which is given to a team member at the chest height by both hands.

(iii) **Held ball** : When the ball is held by two different opponents at the same time.

(iv) **Jump ball** : It is a method used to begin or resume play in basketball. Two opposing players attempt to gain control of the ball after it is tossed up into the air in between them by an official.

(b) (i) **Low dribble** is a controlled dribble in which a player must keep the ball bouncing low nearest to the floor to effectively ensure the ball from guards. This entails the dribblers to extend their hand so as to limit the space the opponent can penetrate.

(ii) **Man-to-man marking** : Man-to-man marking is best defensive tactic. In this, each player is guarded by opponent players so they check the marked player in full court.

(iii) Three duties of a scorer are :

1. To keep a record of the names and numbers of players.
2. To indicate the number of fouls committed by each player.
3. To effect substitution.

(c) (i) 1. When ball crosses the side line.  
2. When any foul is committed.  
3. When an official blows his whistle while the ball is live.  
4. Time expires for a half or an extra period.

(ii) 1. **Length of the court** : 28 m

2. **Breadth of the court** : 15 m

3. **Radius of centre circle** : 1.80 m

4. **Diameter of the ring** : 450-457 mm.

#### Answer 15.

(a) (i) **A direct shot** : A direct shot is one in which the ball first contacts the rim and then goes in the basket.

(ii) **Charging** : Charging is an offensive foul which occurs when an offensive player runs into a defender who has established position.

(iii) **A technical foul** : A technical foul is a foul committed by anyone, players on the court or bench, coaches, other team officials that does not involve contact with the opponent while the ball is alive. Examples of technical foul include use of bad language or gesture, delay of game, excessive timeouts, unsporting conduct and hanging on the rim.

(iv) **Team foul** : A team is in a team foul penalty situation, when it has committed 4 team fouls in a period. All team fouls committed in an interval of play shall be considered as being committed in the extra period.

(b) (i) Three time rule fouls in basketball are :

1. 3 second rule
2. 8 second rule
3. 24 second rule

(ii) **Fouls which involve personal contact with the opponents** :

1. Pushing
2. Blocking
3. Charging

(iii) 1. Delaying the game by throwing the ball away.

2. Being obvious about disagreeing with a referee's decision.

3. Excessive swinging of the elbows (without making contact).

(c) (i) **Intentional foul** is a foul deliberately committed by a defensive player to stop play, tactically conceding the penalty of having the fouled player to attempt the awarded foul shots in return for possession of the ball. The penalty for such foul is two free throws and the ball out of bounds.

(ii) **A jump ball** is the procedure applied to start the game. It occurs when an official tosses the ball in the centre circle between any two opponents at the beginning of the first period.

#### Answer 16.

(a) (i) **Free zone** : The free zone is the area outside the court that players may enter to make a play on the ball. The free zone should be at least 3 metres wide from the court.

(ii) **Back line** : Back line is a 2-inch line that borders the court to serve as the out-of-bounds line. Any ball that touches the line during the play is still considered "in" the court.

(iii) **Antenna** : The antenna is a vertical rod that is located on the top of each end of the volleyball net. The two vertical rods are often red and white in colour and are mounted on the ends of the net, above the sidelines and not in-play. The antennas are usually only used for indoor play and not on outdoor nets.



(iv) **A catch** : The ball is a catch if it does not rebound from the contact, meaning that it bounces off the fingers and/or hands.

- (b) (i) A team is entitled to a maximum of 3 contacts, if a team contacts the ball more than 3 times without returning the ball to the opposing team, a 4 hits fault occurs. A player may not contact the ball two times consecutively. Two or three players may touch the ball at the same moment. When two or more team-mates touch the ball simultaneously, it is counted as one contact.

(ii) **Libero** : There is one player among the 12 players designated as 'libero' who wears different colour uniform and can be substituted infinite times. A libero is specialised in defensive skills.

(iii) **Expulsion** : It is the act of forcing a player to leave the field of play for the rest of the game. Extremely offensive conduct results in the expulsion from the remainder of the game. Expelled players must leave the playing court and remain seated in the penalty area until the start of a new game.

- (c) (i) Procedure of substitution :

1. Substitution must be carried out within the substitution zone.
2. At the moment of the substitution request the substitute player must be ready to enter the court standing close to the substitution zone.
3. When the referee gives signal to the player, he enters in the play field.

(ii) The duties of the First Referee are :

1. Inspects the conditions of the playing area, the balls and other equipment.
2. Performs the toss with the team captains.
3. Controls the teams' warming-up.
4. Request timeout.

#### Answer 17.

- (a) (i) **A collective block** : A block carried out by 2 or 3 front line players placed close to each other in

an attempt to block the coming ball is known as collective block.

(ii) **An assisted hit** : A player takes support from a team-mate or any object in order to reach the ball within the playing area.

(iii) **Dead ball** : Dead ball is a ball that is out of bounds or stopped and out of play or declared to be out of play.

(iv) **Time out** : A time-out is a halt in the play. This allows the coaches of either team to communicate with the team, *e.g.*, to determine strategy or inspire morale, as well as to stop the game clock. Time outs are usually called by coaches or players.

- (b) (i) **Ball in play** : The ball is in play from the moment of the hit of the services authorised by the first referee.

(ii) **Screening** : Screening is a practise of hiding the view of opponent's team by a player or group of players of serving team by waving arms, jumping or moving sideways during the execution of the service, or by standing grouped to hide the server and the flight path of the ball.

(iii) **Faults committed by a player while playing the ball** :

1. Double contact
2. Held ball
3. Assisted hit.

- (c) (i) **A side out** : When the live ball crosses the side line and touches the ground.

(ii) **A penalty** : When any player commits a foul intentionally then referee shows the yellow card and ball is given to the opponent for service.

(iii) **Carrying the ball** : When the ball is not rebound from the hit and it stays for some time with the player.

(iv) **A penetration fault** : A fault given when the opponent player enters into the opponent area in air, by crossing the centre line by foot or by hands over the net during smash, block or lift.



## QUESTIONS

### SECTION-A (50 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) What do you mean by a balanced diet ? [2]

#### Question 4.

- (c) Mention any three symptoms of bone injury. [3]

### SECTION-B (50 Marks)

Attempt **two** questions from this Section.

You must attempt **one** question on each of the **two** games of your choice.

#### CRICKET

#### Question 6.

- (a) Explain the following : [8]

- (i) A dot ball (ii) A runner  
(iii) An appeal (iv) A wide ball

- (b) (i) Mention any three instances when umpire calls for a No ball. [9]

- (ii) When is a batsman considered to be out stumped ?  
(iii) List three different types of strokes played by the batsman in front of the wicket.

- (c) Explain the following terms : [8]

- (i) Clean Bowled (ii) Hit wicket  
(iii) Handling the ball (iv) Run out

#### Question 7.

- (a) Explain the following : [8]

- (i) Bodyline bowling (ii) Declaration  
(iii) Power play (iv) Straight drive

- (b) (i) What is meant by obstructing the field ? [9]

- (ii) What is meant by the term LBW ?  
(iii) Write any three duties of the umpire.

- (c) (i) Write down any four 'off side' fielding positions in cricket. [8]

- (ii) What are the signals for the following :

- (1) Short run (2) Power play  
(3) Bye (4) Free hit

#### FOOTBALL

#### Question 8.

- (a) (i) What is a penalty arc and why is it important ? [8]  
(ii) What do you mean by the term indirect free kick ?  
(iii) Write down the procedure to restart the game when the ball passes over the touch line.

(iv) Write down the procedure to restart the game when the ball is last touched by the defending player and passes over the goal line.

- (b) (i) State any three instances when the opposite team is awarded an indirect free kick for an offence committed by the goal keeper. [9]

(ii) Name the tool kit carried by the referee to conduct a football match.

(iii) State any three fouls when the referee shows a yellow card to a player during the game.

- (c) (i) Explain in detail the procedure followed during Tie-breaker in the game of Football. [8]

(ii) State the following :

1. Duration of a football match (men and women).
2. Substitution allowed in a match.
3. Officials for conducting a football match.
4. Duration of extra time.

#### Question 9.

- (a) (i) What do you mean by the term Red Card ? [8]

(ii) Explain the term 'Sudden death.'

(iii) What is the distance between the goal posts and the height of the cross bar from the ground ?

(iv) Give the measurement of the goal area in football.

- (b) (i) List any three duties to be performed by the captain of the team. [9]

(ii) Mention any three duties of the referee before the match.

(iii) State any three duties of the fourth official.

- (c) Explain the following : [8]

- (i) Trapping (ii) Tackling  
(iii) Dribbling (iv) Kicking

#### HANDBALL

(Questions are not given due to change in present Syllabus).

#### HOCKEY

#### Question 12.

- (a) Explain the following : [8]

- (i) Carried (ii) Back stick  
(iii) A corner (iv) A penalty stroke

- (b) (i) List three offences by defenders which are penalized with a penalty corner against them. [9]

(ii) List any six instances when a referee blows the whistle for a foul.

\*\* Out of Syllabus questions are not given.

(c) (i) What is the procedure for taking a penalty corner ? [8]

(ii) What signal shall the umpire give for the following :

1. Goal scored
2. Dangerous play
3. Obstruction
4. Penalty corner

#### Question 13.

(a) Write down the following : [8]

- (i) Height of the corner flag post.
- (ii) Duration of the game (men and women).
- (iii) Dimensions of the goal posts.
- (iv) Weight of the ball and weight of the stick.

(b) (i) When is a player awarded a push in ? What minimum distance should be observed by the player of the opposite team during a push in ? [9]

(ii) When is a goal considered to have been scored in a match ?

(iii) Write any three duties of the referee.

(c) Draw a neat diagram of the hockey field with its measurements. [8]

#### BASKETBALL

#### Question 14.

(a) (i) Name the types of time-outs. [8]

(ii) What do you mean by pivot-foot ?

(iii) Name any four fundamental skills in Basketball.

(iv) Write any two duties of the Time-keeper.

(b) (i) What is the duration of the game ? How is this time divided ? [9]

(ii) List any six player fouls which are noted over the score sheet by the table official.

(c) (i) Write the procedure to start the game. [8]

(ii) List any four technical equipments used by the table officials.

#### Question 15.

(a) (i) Write any two conditions when a team forfeits the right of play. [8]

(ii) Give the signals for the following :

1. Jump ball
2. Charged time out

3. Technical foul

4. Double foul

5. Travelling

6. Time in

(b) (i) State any three violations when opponents gain the possession of the ball. [9]

(ii) What is a centre circle ? What are its dimensions ?

(iii) What is front pivot ?

(c) Write down the following : [8]

(i) '24' second rule

(ii) '8' second rule

(iii) '5' second rule

(iv) '3' second rule

#### VOLLEYBALL

#### Question 16.

(a) Define the following terms : [8]

(i) A double touch

(ii) Ball out of play

(iii) A disqualification

(iv) Service

(b) Enumerate any three duties of each of the following : [9]

(i) A line judge

(ii) A score

(iii) A coach

(c) (i) Mention any four acts of breach which are punishable. [8]

(ii) Explain legal and illegal substitution in volleyball.

#### Question 17.

(a) (i) When and by whom was the game volleyball invented ? [8]

(ii) List down the equipment used by a volleyball player.

(iii) Define the following terms :

1. Positional fault

2. Rotational fault

(b) (i) Explain how a set and a match is won by a team ? [9]

(ii) What is delay ? What are the various ways in which a game may be delayed ?

(iii) How many legal interruptions are allowed in a game ? Who grants the legal interruptions ?

(c) Briefly explain the following terms : [8]

(i) Service zone

(ii) Substitution zone

(iii) An attack line

(iv) A substitution

#### SOFTBALL

(Questions are not given due to change in present Syllabus).

## ANSWERS

### SECTION-A

#### Answer 1.

(a) Balanced diet is a diet that contains adequate amounts of all the necessary nutrients required for healthy growth and activity. It includes all the nutrients in the required proportion along with water and roughage. A balanced diet constitutes of seven nutrients, which are protein, carbohydrates, fats, vitamins, minerals, water and antioxidants.

#### Answer 4.

(c) Three symptoms of bone injury are :

1. Loss of power and movement of the injured area.
2. Pain tenderness over the injured part.
3. Swelling or bruising over a bone

### SECTION-B

#### Answer 6.

(a) (i) **Dot ball** : When no run is scored on the ball, that ball is called a dot ball.



(ii) **A runner** : A runner is a substituted player who runs for a batsman when he is injured or not able to run.

(iii) **An appeal** : In the sport of cricket an appeal is the act of a player of the fielding team asking an umpire for a decision regarding whether a batsman is out or not.

(iv) **Wide ball** : When the ball is delivered outside the wide line scoring an extra run for the batting side. An extra ball must be bowled for each wide ball.

(b) Refer to ISCE Paper 2020, Answer 6 (c) (ii).

(ii) If a batsman misses the ball and, in attempting to play he steps outside his crease, he is out stumped if the wicket-keeper gathers the ball and breaks the wicket with it before the batsman can ground part of his body or his bat behind his crease.

(iii) 1. On drive                      2. Straight drive  
3. Cover drive

(c) (i) **Clean-bowled** : If the batsman misses the ball and hits and breaks the wicket directly from the bowler's delivery.

(ii) **Hit wicket** : In attempting to hit a ball or taking off for a first run the batsman touches and breaks the wickets.

(iii) **Handling the ball** : A batsman can be given out if the batsman intentionally touches the ball with one or both of his hands not holding the bat without the permission of the fielding side, he can be dismissed.

(iv) **Run out** : A batsman is attempting to take a run, or to return to his crease after an aborted run and a fielder breaks that batsman's wicket with ball while he is out of the crease.

**Answer 7.**

(a) (i) **Bodyline bowling** : When the ball comes to the batsman's body or closer to the body is called bodyline bowling.

(ii) **Declaration** : It is done when the captain of a side declares an innings closed if he feels that his team has scored enough to win the match. Mostly captains declare when their score is above 500.

(iii) **Power play** : A power play is a feature introduced into One Day International cricket in 1991. In a power play, few restrictions are applied on the fielding team: only 2 or 3 players are allowed outside the 30-yard circle. There are two power plays in an ODI cricket innings at present during the first 10 overs of an innings a maximum of 2 fielders are allowed outside the 30-yard circle. In the final 10 overs a maximum of 5 fielders are be allowed to field outside the 30-yard circle.

(iv) **Straight drive** : The straight drive is employed to attack full-length deliveries directed on a line towards the stumps. It is played straight back towards the bowler. The straight drive relies on timing and placement rather than power and is controlled throughout by the top hand.

(b) (i) If a batsman tries to distract or obstruct the fielding side by any means, whether through actions or words, he is declared out by obstructing the field dismissal method. In simple words, if intentionally a batsman distracts any opposition team player during a match, he may be declared out by following obstructing the field.

(ii) **Leg before wicket (LBW)** : A batsman can be called out LBW if any part of his body, clothing or equipment intercepts a ball that would have hit the wicket, providing the ball pitched or would have pitched, in a straight line between the wickets. An umpire must adjudicate such a decision, when the fielding teams *appeal* the decision. This is a question asked to the umpire, usually in the form "How's that?" (or "Howzat?"), and usually quite enthusiastic and loud. If the ball bounces outside an imaginary line drawn straight down the pitch from the outside edge of leg stump, then the batsman cannot be out LBW, no matter whether or not the ball would have hit the stumps.

(iii) **Three duties of umpires are :**

1. To make judgments on LBW's.
2. To ensure fair play and without partiality.
3. To judge the fitness of the ground.

(c) (i) 1. Cover point.                      2. Short mid off.  
3. Gully                                      4. Backward point.

(ii) 1. **Short run** : Umpire taps his near shoulder with his fingers.

2. **Power play** : A non-verbal action in which the umpire raise his right hand and move it in a circular manner from top to bottom.

3. **Bye** : A bye is called when a legal delivery passes the stumps without the ball touching either bat or batsman's body. The signal is one arm stretched high above the body.

(4) **Free hit** : A non-verbal action in which umpire raises his right hand in air and move it in a circular manner in the air.

**Answer 8.**

(a) (i) A penalty arc is an area drawn outside the penalty area and the centre is the penalty mark. it is important as penalty kick is taken from within this area.

(ii) **Indirect free kick** : An indirect free kick is a method of restarting the play. An indirect free



kick is awarded to the opposing team when a player commits a foul other than a penalty foul. A goal cannot be scored directly with this kick.

(iii) A throw-in is a method of restarting play when the ball passes over the side line.

#### Procedure of Throw-in

1. At the moment of delivering the ball, the thrower, must face the field of play and have a part of each foot on the touchline or on the ground outside the touchline. He should throw the ball with both hands from behind and over the head from the point where it left the field of play.

2. All opponent must stand not less than 2 m from the point at which the throw-in is taken.

3. The ball is in play when it enters the field of play.

4. After delivering the ball, the thrower must not touch the ball again until it has been touched by another player.

(iv) A corner kick is a method of restarting play. A corner kick is awarded when the whole of the ball, having last touched a player of the defending team, passes over the goal line, either on the ground or in the air and a goal is not scored according to the rule.

#### Procedure :

1. The ball must be placed inside the corner arc, near to the point where the ball crossed the goal line.

2. The corner flagpost must not be moved.

3. Opponents must remain at least 9.15 m from the corner arc until the ball is in play.

#### (b) (i) Three fouls of a goalkeeper that result in an indirect free kick being awarded are :

1. Taking more than six seconds while controlling the ball with his hands before releasing it from his possession.

2. Touching the ball again with his hands after it has been released from his possession and has not touched any other player.

3. Touching the ball with his hands after it has been deliberately kicked to him by a team-mate.

#### (ii) Referee's equipments while conducting the match are :

1. A current book of rules.

2. A loud distinctive whistle.

3. A stop watch.

4. Two pencils.

5. A card to record the time, goal etc.

6. Yellow and red cards.

#### (iii) Three offences for which a yellow card is shown to a player are :

1. Interfering with play.

2. Interfering with an opponent.

3. Gaining an advantage by being in that position.

(c) (i) When no team is able to score in the normal duration of the match then tie breaker is applied. First extra time is given, in case tie remains unbroken, five penalty kicks are given to each team. The whole process used to decide the match is known as tie-breaker.

(ii) 1. The match last for two equal periods of 45 minutes.

2. Substitutions in a match is made to replace a player who becomes injured or tired, or who is performing poorly and is changed for tactical reasons by manager or coach of the team. A player who has been substituted during a match may take no further part in it. A maximum of three substitutions are allowed during a match.

3. The officials are :

(a) The Referee (b) Two Assistant Referees.

4. The team play for extra time of two halves of 15 minutes each over the time period.

#### Answer 9.

(a) (i) **Red card** : A red card is shown by a referee to signify that a player has been sent off field. A player who has been sent off is required the field to leave the field of play immediately and must take no further part in the game.

(ii) **Sudden death** : When no goal is scored after the tie breaker, alternate penalty kicks are given to each team till the tie is broken.

(iii) Distance between the goalpost is 7.32 m. Width and depth of the goalposts and crossbars is 12 cm.

#### (iv) Dimensions :

|                                                                                                            |        |
|------------------------------------------------------------------------------------------------------------|--------|
| Two lines are drawn at right angles to the goal line from the inside of each goalpost.                     | 5.5 m. |
| These two lines extend into the field of play, and are joined by a line drawn parallel with the goal line. | 5.5 m. |

#### (b) (i) Three duties to be performed by the captain of the team are :

1. He participates in the coin toss prior to the kick-off.

2. He participates in the coin toss prior to a penalty shootout.

3. He leads the team up to collect their medals.

#### (ii) Duties of Referee before the match are :

1. He ensures that the players' equipments meets the requirements of Law 4.

2. He ensures that the ball used meets the requirements of Law 2.

3. He ensures that no unauthorised persons enter the field of play.

**(iii) Duties of the fourth official :**

1. He assists with administrative functions before, during and after the match.

2. He ensures substitutions are conducted in an orderly manner.

3. He maintains decorum in the teams' technical areas and interceding in situations where coaches, bench personnel, or substitutes become agitated.

**(c) (i) Trapping :** It is a skill performed by a player, where upon the player uses their foot (or, less commonly, their chest or thigh) to bring an airborne or falling ball under control.

**(ii) Tackling :** This is to take away the ball from the opponent and to control the ball. For this the player keeps the eyes on the ball and watch the speed, stride and proximity of the ball to the opponent. Tackle when the ball has just left the foot of the dribbler.

**(iii) Dribbling :** It means pushing or carrying the football with foot. While dribbling keeps the ball always under the player's control. He should not use hard strokes while dribbling. The practice of dribbling can be done by placing some obstacles in a straight line.

**(iv) Kicking :** It is the act of propelling a ball by striking it with the foot depending upon the position of the players. It is the primary method of transferring the ball from one player to another. It is an art to control the speed, direction and distance in the game, from different angles and with different types of kicks.

**Answer 12.**

**(a) (i) Carried :** When a ball is hit on player's leg (foot) while dribbling or tackling an opponent, it is considered as a foul (foot foul), opponents can intentionally hit the ball on a player's leg to get free hit. So he has to be careful while tackling opponent.

**(ii) Back stick :** A back stick is an illegal shot in which the ball strikes the rounded face of the hockey stick.

**(iii) A corner :** Corners are of two types in hockey short corner and long corner. If a defender commits a foul, inside the striking circle short corner is awarded. Long corner are awarded when ball goes outside the field from back line after hitting defender's stick.

**(iv) Penalty stroke :** In field hockey, a penalty stroke, sometimes known as penalty flick, is the

most severe penalty given. It is predominantly awarded when a foul has prevented a certain goal from being scored or for a deliberate infringement by a defender in the penalty circle.

**(b) (i) Three offences of defenders penalized with a penalty corner against them are :**

1. When he intentionally hits the ball out of bounds over his team's back line.

2. When he commits an intentional foul inside the 22-metre line, but outside the shooting circle.

3. When he commits an unintentional foul on an attacking player who have the ball in his possession inside the striking circle.

**(ii) Six instances when a referee blows the whistle for a foul are :**

1. **Advancing or Carried :** Commonly considered as foot foul, but pertains to any part of the body to propel, deflect or stop the ball to your team's advantage.

2. **Obstructions:** Shielding the ball with the stick or any part of a player's body.

3. **Dangerous hit :** A raised hit in an area near other players. A raised hit may be considered as legal hit if positioned to an open area.

4. **Third party obstruction :** A teammate takes a position between an opponent and the ball so his/her teammate has the opportunity to play the ball.

5. **Covering the ball :** This usually happens around the goal and can result in a penalty stroke shot.

6. **Stick charge :** Charging of stick on opponent's stick by player is considered as stick charge.

**(c) (i)** A player of the attacking team shall push or hit the ball from a spot on the back line not less than 10 yards from the goal-post on which ever side of the goal the attacking team prefers. The player concerned is required to have atleast one foot outside the field of player when taking penalty corner.

**(ii) 1. Goal scored :** Point both arms horizontally towards the centre of the field.

2. **Dangerous play :** Hold the arms in front horizontally with both palms facing other and hand placed over other with about one foot space in between.

3. **Obstruction :** Cross both arms in front of the chest.

4. Point both hands and arms horizontally towards the goal.

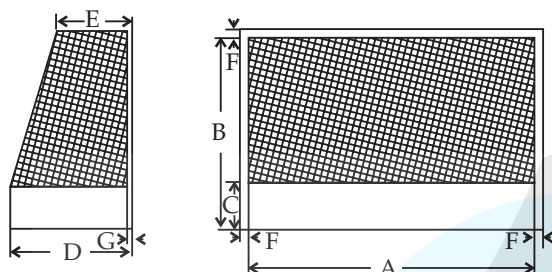
**Answer 13.**

**(a) (i) Height of each flag-post :** 1-20 m and 1-50 m.

**(ii) Duration of the game :** 4 quarters of 15 minutes each.

(iii) Goalpost dimensions :

| Code | Metres       | Code | Metres         |
|------|--------------|------|----------------|
| A    | 3.66         | E    | Minimum 0.90   |
| B    | 2.14         | F    | 0.050          |
| C    | 0.46         | G    | 0.050 to 0.075 |
| D    | Minimum 1.20 |      |                |



(iv) Ball's weight : 156-163 grams.

Total weight of the stick must not exceed 737 grams.

- (b) (i) Moving the ball along the ground using a pushing movement of the stick, after the stick has been placed close to the ball. When a push is made, both the ball and the head of the stick are in contact with the ground. It is awarded if a player hits the ball over the side line. All players must be 5 yards away from each other.

(ii) A goal is scored when the ball is played within the circle by an attacker and does not travel outside the circle before passing completely over the goal line and under the cross bar.

(iii) Three duties of the referee are :

1. To signal the start time and stop time of the play.
2. To warn a player who is bullying.
3. To ensure the fair play.

- (c) Refer to ICSE Paper 2019 Answer 12 (c).

**Answer 14.**

- (a) (i) Time-outs are of following types :

1. **Short time-out :** This time out is of 20 seconds duration in which only one player may be substituted.

2. **Long time-out :**

(a) A total number of 05 time-outs are authorised to each team coach. Each long time-outs are of 01 minutes duration.

(b) Out of 05 team time-outs, 02 time-outs are usable for first half and rest 03 time-outs are usable for second half with a maximum of 2 of these time-outs in the last 2 minutes of the second half.

(c) Unused time-outs may not be carried over to the next half or extra period.

(d) 1 time-out is authorised for each team for each extra period.

3. **TV/Media time-out :** They are being used for TV commercials.

(ii) A pivot takes place when a player who is holding the ball steps once or more than once in any direction with the same foot, while the other foot is called the pivot-foot which is being kept at its point of contact with the floor.

- (iii) 1. Dribbling                      2. Pivot  
3. Shooting                      4. Catching

(iv) Two duties of time keeper are :

1. Measure playing time, time outs and intervals of game.
2. Ensure that a signal sounds very loudly and automatically at the end of the playing time in a period.

- (b) (i) The game consists of four (4) periods of ten (10) minutes. There shall be intervals of play of two minutes between the first and second period (first half), between third and fourth period (second half) and before each extra period. There shall be a half time interval of fifteen minutes in between.

- (ii) 1. Illegal use of hands.  
2. Blocking (defence or offence)  
3. Excessive swinging or elbows.  
4. Holding.  
5. Charging with the ball.  
6. Doubling.

- (c) (i) A jump ball is the procedure applied to start the game. It occurs when an official tosses the ball in the centre circle between any two opponents at the beginning of the first period.

(ii) Technical equipment used by the table officials are :

1. Game clock and stop watch.
2. 30 second device.
3. Score sheet.
4. Whistles.
5. Players foul marker.
6. Team foul marker.

**Answer 15.**

- (a) (i) The two conditions when a team forfeits the right of play are :

1. Its action prevents the game from being played.
2. It refuses to play after being instructed by the referee to do so.

(ii) 1. **Jump ball :** A jump ball occurs when an official tosses the ball in the centre circle between any two opponents at the beginning of the first period.

2. **Charged time out :** A charged time-out is of 75 seconds duration unless team charged with time-



out is ready to resume play sooner. A warning horn is sounded at 60 seconds and a second signal at 75 seconds, at this time teams must be ready to play. A time-out shall be 75 seconds if a team is charged with an excessive time-out.

**3. A technical foul :** A technical foul is a foul committed by anyone, players on the court or bench, coaches, other team officials that does not involve contact with the opponent while the ball is alive. Examples of technical foul include use of bad language or gesture, delay of game, excessive timeouts, unsporting conduct and hanging on the rim.

**4. Double foul :** When two opponent players commit personal or technical foul against each other simultaneously.

**5. Travelling :** Travelling is an illegal movement of one or both feet beyond the limits in direction while holding a live ball on the playing court.

**6.** After time has been out, the game clock shall be started :

(a) On a free throw that is unsuccessful and the ball continues in play, the game clock shall be started when the missed free throw is legally touched by any player.

(b) If play is resumed by a throw-in from out-of-bounds, the game clock shall be started when the ball is legally touched by any player within the playing area of the court.

(c) If play is resumed with a jump ball, the game clock shall be started when the ball is legally tapped.

(b) (i) **1.** A player shall not touch the ball or basket while the ball is on or within the basket.

**2.** The free throw shooter may not cross the plane of the free throw line until the ball touches the basket ring, backboard, or the free throw ends.

**3.** After the ball is placed at the disposal of a free throw shooter, his attempt shall be within 10 seconds in such a way that the ball enters the basket or touches the ring before it is touched by a player. The shooter shall be within that part of the free throw circle behind the free throw line.

(ii) It is the circle marked in the centre of the playing court and have a radius of 1-80 m measured to the outer edge of circumference.

(iii) Moving forward while turning on the pivot-foot i.e., the foot that remain touching the floor until the player has the ball and the pivot-foot must remain constant while taking front pivot.

(c) (i) **24 Seconds rule :** Whenever a player gains control of a live ball on the playing court his team must attempt a shot for a field goal within 24 seconds.

(ii) **'8' Seconds rule :** Whenever a player gain control of a live ball in his back court his team must cause the ball to go into its front court within 8 seconds.

(iii) **'5' Seconds rule :** When a player is being closely guarded who is holding the ball does not pass, or dribble the ball within 5 seconds it is violation with side lines throw for the opponents.

(iv) **'3' Seconds rule :** A player shall not remain in the opponents restricted area for more than three consecutive seconds while his team is in control of a live ball in the front court while the game clock is running.

#### Answer 16.

(a) (i) **A double touch :** A player hits the ball twice in succession or the ball contacts various parts of his / her body in succession.

(ii) **Ball out of play :** The ball is out of play at the moment of the fault which is whistled by one of the referees; in the absence of a fault, at the moment of the whistle.

(iii) **A disqualification :** A team member who is sanctioned by disqualification must be substituted legally and immediately on the court and must leave the competition control area for the rest of the match with no other consequences.

(iv) **Service :** A service is an action which puts the ball into play. The server uses the hand or any part of the arm to send the ball over the net and into the opposing court.

(b) (i) **Three duties of a line judge are :**

**1.** Foot fault occurs by server or another player.

**2.** The ball crossing the net outside the crossing space into the opponent's court or touching the antenna on his side of the court.

**3.** To signal if the server moves outside of the service position in violation of the rules.

(ii) **Three duties of the scorer before the match :**

**1.** Registers the data of the match and teams, including the name and number of the libero player, according to the procedures in force, and obtains the signatures of the captains and the coaches.

**2.** Records the starting line-up of each team from the line-up sheet.

**3.** Records the points scored.

(iii) **Duties of the coach before the match :** The coach records or checks the names and number of his/her players on the scoresheet and sign it. During the match, the coach prior to each set, gives the second referee or the scorer the line-up sheets duly filled in and signed. He requests time outs and substitutions and may give instructions to the players on the court.



**(c) (i) The four acts of breach are :**

1. The fault on playing the ball.
2. The fault above the net admits upper part.
3. The attack hit faults of the libero and the back-row players.
4. The ball crossing the lower space under the net.

**(ii) 1. Legal substitution :** A substitution is an act by which, a player, other than the libero or his replacement player, after being recorded by the scorer, enters the game to occupy the position of another player who must leave the court at that moment with the referee's authorisation is legal substitution.

**2. Illegal substitution :** A substitution is illegal if it does not fulfill the proper rules for substitution like, making more than six substitute player does not follows the rules that are laid.

**Answer 17.**

**(a) (i)** In 1895, William G. Morgan, An instructor at the Young Men's Christian Association (YMCA) in Holyoke, Mass, decided to blend elements of basketball, baseball, tennis, and handball to create a game for his class of businessmen which would demand less physical contact than basketball. He created the game of Volleyball (at that time called mintonette).

**(ii)** A player's equipment consist of a jersey, shirts, socks (the uniform) and sport shoes.

The colour and design for the jersey, shorts and socks must be uniform for the team (except for libero), jersey must be numbered from 1 to 18. The team captain must have on his/her jersey a stripe of  $8 \times 2$  cm underlining the numbers on the chest.

**(iii) 1. Positional fault :** The team commits a positional fault, if any player is not in his/her correct position at the moment when the ball is hit by the server.

**2. Rotational fault :** Rotational fault occurs when a team does not follow its starting line-up and service order.

**(b) (i) To win a set :** A set (except the deciding, 5th set) is won by the team which first scores 25 points with a minimum lead of two points but in the case of a 24-24 tie, game continues until a two-point lead is achieved (26-24; 27-25; ...).

To win the match : The match is won by the team

that wins three sets. In the case of a 2-2 tie, the deciding set (the 5th) is played to 15 points with a minimum lead of 2 points.

**(ii) Delay :** Delay means the interruption in the regular game or set. The game may be delayed due to injury, bad weather or substitution.

**(iii)** Two legal interruptions are allowed in a game. The referee grants the legal interruptions.

**(c) (i) A service zone :** This is the area of the court from where the server serves. The service zone is a 9 m wide area behind each end line. It is laterally limited by two short lines, each 15 cm long, drawn 20 m behind the end line as an extension of the sidelines. Both short lines are included in the width of the service zone. In depth, the service zone extends to the end of the free zone.

**(ii) Substitution zone :** The substitution zone is limited by the extension of both attack lines up to the scorer's table. Once the player enters the substitution zone, he/she becomes an eligible substitute.

**(iii) Attack line :** The attack line is drawn parallel to the back row or back court and front row or front court. The main purpose of the attack line is to mark where back row players can attack the ball.

**(iv) A substitution :** A substitution is an act by which the referees authorise a player (other than the libero) to leave the court and another player to occupy his position on the court after being recorded.

**(i) Legal or exceptional substitution :** A team is compelled to substitute a player in the following cases :

1. An expelled player must be changed through a legal substitution, and if this is not possible the team will be declared incomplete.

2. An injured player who cannot continue to play, must be legally substituted, but if the team has exhausted its allowable substitution, then the team must have an exceptionally illegal substitution.

**(ii) Illegal substitution :** A substitution is illegal when it does not fulfill the conditions provided. The request must be refused and a time-out is charged instead, to the team at fault. An exception is a substitution for an injured player.



## QUESTIONS

### SECTION-A (50 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) Write any two advantages of health education. [2]

#### Question 2.

- (a) Name any four common sports injuries. [2]  
(b) What is nutrition ? [2]

#### Question 3.

- (a) State any four advantages of correct posture. [2]

### SECTION-B (50 Marks)

Attempt **two** questions from this Section.

You must attempt **one** question on each of the **two** games of your choice.

#### CRICKET

#### Question 6.

- (a) Explain the following terms : [8]  
(i) Timed out (ii) Catch out  
(iii) Intentional disturbance (iv) Double hit
- (b) (i) List any three Protective Equipments used by the batsman.  
(ii) Write down any three fielding positions of on side.  
(iii) What is the importance of 30 yard circle in the game of cricket ? [9]
- (c) Write the following :  
(i) Weight and circumference of a cricket ball.  
(ii) Length and widest part of a cricket bat.  
(iii) Height and breadth of cricket stumps.  
(iv) Distance between stumps and distance of inner circle from the wickets. [8]

#### Question 7.

- (a) Explain the following terms : [8]  
(i) A sight screen (ii) How's that ?  
(iii) A googly (iv) A China-man
- (b) (i) Draw a diagram of a Cricket Pitch and mark the following : [9]  
1. The Bowling Crease 2. The Popping Crease  
3. The Return Crease  
(ii) What do you mean by ball tampering ?  
(iii) What do you mean by the term substitute ?

\*\* Out of Syllabus questions are not given.

- (c) Explain the following : [8]  
(i) A Stance (ii) A Full toss  
(iii) A Run-up (iv) A Sweep shot

#### FOOTBALL

#### Question 8.

- (a) Draw a diagram of a football field showing all the dimensions. [8]  
(b) (i) State three procedures that will be followed during a kick off. [9]  
(ii) State any three duties of an Assistant Referee.  
(iii) What is the procedure of taking a throw in ?
- (c) (i) When is the corner kick awarded and from where is it taken ? [8]  
(ii) Explain the following :  
1. A Substitution 2. A Through-Pass

#### Question 9.

- (a) (i) State any four offences committed by a player within his own penalty area, which warrants the award of penalty kick. [8]  
(ii) What is the circumference and weight of a standard football ? State its minimum and maximum size.
- (b) (i) How is a goal scored in the game of football ? [9]  
(ii) As a Referee what decisions would you take if the following incidents occur during a match :  
1. A player intentionally pushes an opponent.  
2. A defending player intentionally handles the ball in the penalty area.  
3. A player indulges in misconduct even after receiving a yellow card.  
(iii) In a knockout tournament if the match ends in a draw, what will be the procedures followed to determine the winner of the match ?

- (c) Explain the following : [8]  
(i) An off-side (ii) A Free-kick  
(iii) Heading (iv) Passing

#### HANDBALL

(Questions are not given due to change in present Syllabus).

#### HOCKEY

#### Question 12.

- (a) Explain the following terms : [8]  
(i) A Goal Line (ii) A Playing Distance  
(iii) Dribbling (iv) An Obstruction

(b) In the event of the ball going over a back line, how does the game resume : [9]

(i) When an attacker knocks the ball out of play ?

(ii) When a defender unintentionally knocks the ball out of play ?

(iii) When a defender intentionally knocks the ball out of play ?

(c) (i) Write any four occasions when the umpire blows the whistle during a game. [8]

(ii) Explain the following terms :

1. A penalty corner
2. Dangerous play

#### Question 13.

(a) Explain the following : [8]

(i) Carried (ii) A Rolling-substitution

(iii) A Bully (iv) A Corner

(b) (i) Mention three procedures to be followed while taking a 'Penalty Stroke' ? [9]

(ii) List three instances wherein 'Penalty corner' is awarded.

(iii) State the importance of the shooting circle.

(c) Explain the following : [8]

(i) A Corner Push (ii) A Dodge

(iii) A Tapping (iv) A Shin Guard

#### BASKETBALL

#### Question 14.

(a) Explain the following : [8]

(i) An alternating possession indicator

(ii) A double foul

(iii) A violation

(iv) Three point successful shot

(b) (i) Explain the following terms : [9]

1. A ten second rule

2. A cut in

3. A clean shot

(ii) What do you mean by Man-to-man marking ?

(iii) Define the term Zone-defence.

(c) Write the following : [8]

(i) An illegal screening

(ii) A live-ball

(iii) A dead-ball

(iv) A lay-up-shot

#### Question 15.

(a) Explain the following : [8]

(i) A time out

(ii) A disqualifying foul

(iii) Rebounding

(iv) A closely guarded player

(b) What do you understand by the following terms ? [9]

(i) Blocking (ii) Holding

(iii) A held-ball

(c) Explain the following terms : [8]

(i) Dribbling

(ii) A board-shot

(iii) A three point-shot

(iv) Team fouls

#### VOLLEYBALL

#### Question 16.

(a) Explain the following : [8]

(i) A blocking (ii) A misconduct

(iii) An assisted hit (iv) A consecutive contact

(b) Enumerate any three duties of each of the following : [9]

(i) A First referee

(ii) An Assistant referee

(iii) A Captain on the court

(c) Briefly explain the following : [8]

(i) A rotation

(ii) A collective block

(iii) A screening

(iv) A technical time-out

#### Question 17.

(a) (i) List the officials appointed to conduct the match. [8]

(ii) What is a rally point ?

(iii) Who requests the referee for a substitution ?

(iv) When is the service changed during a match ?

(b) (i) List three Services Faults which leads to a change of service ? [9]

(ii) Mention three types of Delays which prolongs the game ?

(iii) Explain the procedure of substitution during play.

(c) Draw a neat diagram of a Volleyball court and mark the following : [8]

(i) Side line (ii) Service line

(iii) Attack line (iv) Front zone

(v) Back zone (vi) Rotation position

(vii) Height of the net (men) from the ground

(viii) Size of the net

#### SOFTBALL

(Questions are not given due to change in present Syllabus).

## ANSWERS

### SECTION-A

#### Answer 1.

(a) Two advantages of health education are :

1. Health education encourages a person to

make healthy choices, they are instructed to avoid unhealthy habits.

2. Health education brings positive changes in the mind of the people. There are high chances



that they would never indulge in the deadly habits of smoking, alcoholism, etc.

#### Answer 2.

- (a) **Common Sports injuries are :** Abrasions, sprains, shin splints, fractures.
- (b) Nutrition is the process of obtaining and consuming the food necessary for health and growth. Food contains nutrients in it, nutrients are the substances which help in the growth of the body and in energy yielding process.

#### Answer 3.

- (a) **Four advantages of a correct posture are :**
1. Keeps bones and joints in the correct alignment so that muscles are being used properly.
  2. Prevents back ache and muscular pain.
  3. Contributes to a good appearance.
  4. Prevents the spine from becoming fixed in abnormal positions.

### SECTION-B

#### Answer 6.

- (a) (i) **Time out :** If a new batsman takes longer than two minutes, from the time the previous wicket falls, to appear on the field.
- (ii) **Catch out :** If a fielder catches the ball on the full after the batsman has hit it with his bat.
- (iii) **Intentional disturbance :** When any player creates any disturbance knowingly on the ground or from outside the playing field is called intentional disturbance.
- (iv) **Double hit :** If a batsman hits a delivery with his bat and then deliberately hits the ball again for any reason. Other than to defend the wicket from being broken by the ball. If the ball is bouncing or rolling around near the stumps, the batsman is entitled to knock it away so as to avoid being bowled, but not to score runs.
- (b) (i) **Protective equipments used by the batsman:**  
1. Helmet, 2. Gloves, 3. Pads.
- (ii) 1. Leg slip, 2. Mid wicket, 3. Long on
- (iii) Refer to I.C.S.E. Paper 2018, Answer 6 (c)(iv).
- (c) (i) **Weight of the ball** is between 156-163 gm.  
Circumference of the ball is between 24.4-22.9 cm.
- (ii) **Length of bat :** 95.6 cm (38 inch)  
**Width of bat :** 10.8 cm (4.25 inch)
- (iii) **Height of stumps :** 71.3 cms (28 inch)  
**Width of stumps :** 22.8 cms (9 inch)
- (iv) **Distance between stumps :** 20.12 m (2 yards)

**Distance of inner circle from the wickets :** 30 yards

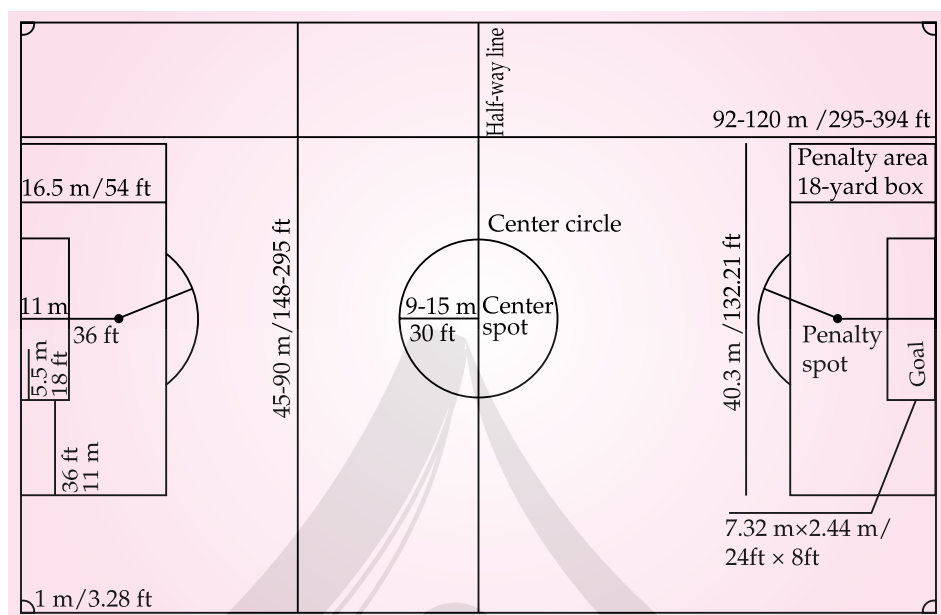
#### Answer 7.

- (a) (i) **A sight screen :** A sight screen is a large screen positioned beyond the boundary such that it forms a backdrop behind the bowler so that the striker can see the ball clearly.
- (ii) **How's that :** In this the fielding team asks the umpire that if the batsman is out or not.
- (iii) **Googly :** When a leg spin bowler spins the ball clockwise and bounces towards the batsman. The movement is from the offside to the leg side. To achieve the spin, the bowler turns his wrist so the back of his hand faces the batsman and releases the ball from the back of his hand.
- (iv) **A China-man :** A ball bowled by a left-handed spin bowler to a right-handed batsman that spins from the offside to the leg side. The bowler throws a spin ball by keeping his head down, not facing the batsman and his arm goes over the head is called 'China-man' bowling.
- (b) (i) Refer to ICSE Paper 2019, 6 (b) (ii).
- (ii) **Ball tampering :** It is an action in which a fielder illegally alters the condition of the ball. The primary motivation of ball tampering is to interfere with the aerodynamics of the ball. Few ways of ball tampering are rubbing the ball on the ground, polish with substance like hair gel or lip balm.
- (iii) **Substitute :** A substitute in the sport of cricket is a replacement player that the umpires allow when a player has been injured or become ill after the nomination of the players at the start of the game.
- (c) (i) **Stance :** The way in which the batsman positions himself as he prepares to face the incoming bowler. Normally batsmen place their feet 6-8 inches apart, on either side of the popping crease, with their weight distributed evenly for good balance and mobility.
- (ii) **A full toss :** It is a delivery that reaches the batsman without bouncing on the pitch. They are commonly greeted by a batsman, as they tend to be very easy to hit.
- (iii) **A Run-up :** A bowler takes the number of steps before delivering the ball from bowling crease is known as run-up.
- (iv) **A Sweep shot :** A horizontal bat shot which pulls the ball around the batsman into the square leg area. The batsman gets down on one knee so as to hit ball which bounce low.



## Answer 8.

(a)



(b) (i) Procedure of kick off :

1. All players are in their own half of the field.
2. The opponents of the team taking kick off are at least 9.15 m away from the ball until it is in play.
3. The ball is stationary on the centre mark.
4. The referee gives a signal.

(ii) Duties of Assistant Referee :

1. He will see the whole ball has passed out of the play field.
2. He will see corner kick, goal kick or throw in.
3. He will see the off side.

(iii) **Throw in** : When the throw in is awarded against any team opponent holds the ball by both hands standing outside the touch line and throw it inside the play field over head and keeping both the legs on the ground.

(c) (i) **Corner kick** : When the ball crosses the goal line having last touch by the defensive player then the corner kick is awarded, it is taken from the corner flag.

(ii) 1. **Substitution** : When any player out of eleven players is not able to play or team captain or coach feels to change the player, another player sent to play on his place from extra players is known as substitute.

2. **A through pass** : A through pass occurs when a player sends the ball into the open space behind defenders so that a teammate can sprint past the defensive line to receive the ball.

## Answer 9.

(a) (i) Four offences committed by a player within his own penalty area :

1. Jump at an opponent
2. Pushes an opponent
3. Charges an opponent
4. Kick or attempt to kick an opponent.

(ii) **Circumference** : 68 cm – 70 cm

**Weight** : 410 g – 450 g

**Size : Minimum size** – 3 (580–600 mm)

**Maximum size** – 5 (685–695 mm)

(b) (i) A goal is scored in the game of Football when the live ball crosses the goal line under the cross bar and in between the goal post.

(ii) 1. Direct free kick      2. Penalty kick

3. Red card (sent off the game)

(iii) If a match is tie in a knock out tournament first tie breaker will be applied, then first extra time of 15 min will be given to both the teams if then tie is there 5-5 penalty shots will be given if again tie remains the alternate penalties will be given till the match will be decided.

(c) (i) **Off-side** : An offender is said to be off-side when he is moving towards the goal line of opponent without ball in the absence of at least two opponents.

(ii) **A free kick** : A kick awarded to a team resulting from an offense committed by the opposition; to be taken from where the offense occurred.

(iii) **Heading** : Ball played by the head is known as heading.

(iv) **Passing** : Passing is a way of sending the ball by one player to the own team-mate in air or grounded it done by head of feet.

#### Answer 12.

- (a) (i) **Goal line** : A goal line falls in between the goal-posts.  
 (ii) **A playing distance** : It is a distance within which a player is capable of reaching the ball to play it.  
 (iii) **Dribbling** : Dribbling is running with the ball while shifting it right and left and keeping it in control so as to pass it at any time or change its direction to beat the player.  
 (iv) **Obstruction** : Cross both arms in front of the chest.
- (b) (i) Free hit will apply from 15 metres away from the back-line.  
 (ii) A corner will be awarded to the attacking team and the play will restart with the ball hit by attacker 5 mts from one corner of the field.  
 (iii) A penalty corner will be given to the attacking team.
- (c) (i) **Four occasions when the umpire blow the whistle are** :
1. When the game starts.
  2. When any foul is committed by a player.
  3. When the goal is scored.
  4. When the any quarter is over.
- (ii) 1. **A penalty corner** : The attackers pushes a ball from a mark which is 10 yards away from the goal post on side the team prefers. Five defenders including a goal-keeper are allowed to stand behind the goal line to defend their goal.  
 2. **Dangerous play** : Dangerous play ranges from players intentionally doing something that can hurt another player.

#### Answer 13.

- (a) (i) Refer to ICSE Paper 2017, Answer 12 (a) (i).  
 (ii) **Rolling substitution** : The continuous replacement of one player by another throughout the game, as long as each side has only 11 players on the field at a time.  
 (iii) **Bully** : Two players of both the teams stand in front of each other, they touch their sticks to the ground three times and alternately their opponents stick after that the ball is put in play.  
 (iv) Refer to ICSE Paper 2017, Answer 12 (a) (iii).
- (b) (i) **Three procedures followed while taking a penalty stroke are** :
1. Keep the ball stationary on penalty mark.
  2. Except goal-keeper no defender remains in the D or the shooting circle.

3. All the attackers except stroke player remain out of the shooting circle.

(ii) **Penalty corner is awarded** :

1. For an offence by a defender in the circle which does not prevent the probable scoring of a goal.
2. For an intentional offence by a defender outside the circle but within the 23 metres area they are defending.
3. For intentionally playing the ball over the back-line by a defender.

(iii) **Shooting circle** : Due its shape it is also called D. Importance of this circle in the game is that a goal can be scored only within the D. If any defender intentionally hits or push in this area penalty stroke is awarded.

(c) (i) **A corner push** : It is a push taken by the attacking team from 5 metres from the corner of the field. It is awarded when the ball crosses the back line after deflecting from defender's stick.

(ii) **A dodge** : Mostly the dodge is used when a player approaches to possess the ball from the front. To deceive that player with tactics is called dodging.

(iii) **Tapping** : Hockey players tap wooden stick blade to protect and increase the durability. They cover the blade by tap which gives the puck more spin, touch and grip.

(iv) **A Shin guard** : Shin guard is made of suitable material (rubber, plastic etc.) and provides a reasonable degree of protection.

#### Answer 14.

- (a) (i) **An alternating possession indicator** : Have an arrow of minimum length 100 mm and height 100 mm display on the front side arrow, illuminated in bright red colour, it is when switched on it shows the direction of the alternating positions.  
 (ii) **Double foul** : When two opponent players commit personal or technical foul against each other simultaneously.  
 (iii) **A violation** : A violation is the most minor class of illegal action. Most violations are committed by the team with possession of the ball, when a player mishandles the ball or makes an illegal move.  
 (iv) **Three point successful shot** : When the shot is made from outside the three point circle and ball goes in the ring is called three point successful shot.
- (b) (i) 1. **Ten second rule** : When a player gains control of a live ball in the back court his team must within 10 seconds move the ball back into the front court.

2. **A cut in :** A sudden running movement to get open for a pass.

3. **A clean shot :** A shot played with the right angle and it is converted in basket is known as a clean shot.

(ii) **Man-to-man marking :** Man-to-man marking is best defensive tactic. In this each player is guarded by opponent players so they check the marked player in full court.

(iii) **Zone defence :** In the zone defence defender is assigned a specific area of the floor and then guards if any offensive player enters his area.

(c) (i) **An illegal screening :** When a player attempts to prevent an opponent who is not in control of the ball from reaching a particular position.

(ii) **A live ball :** A ball becomes live when a jump is legally topped by a jumper.

(iii) **A dead ball :** When the basket is scored after that ball becomes dead ball. Dead ball means that ball is not in play.

(iv) **A lay up shot :** A lay up shot is a two-point shot attempt made by leaning from below, laying the ball up near the basket, and using one hand to bounce it off the back board and into the basket.

#### Answer 15.

(a) (i) **Time out :** A time out is an interruption of the game requested by the coach or assistant coach.

(ii) **A disqualifying foul :** A disqualifying foul is any flagrantly unsportsman like action of a player, substitute excluded player, coach, assistant coach or team follower.

(iii) **Rebounding :** When the ball bounces off the backboard or basket is called rebounding.

(iv) **A closely guarded player :** When the player is guarded by the opponent so that he is unable to move ahead or sideways is called closely guarded.

(b) (i) **Blocking :** When a player attempts to screen and block the opponent to restrict him, to him to move towards scoring.

(ii) **Holding :** When the player who has possession of a ball catch the ball with both hands after dribble is called holding. A player can hold the ball for 5 sec.

(iii) **Held ball :** When the ball is held by two different opponent at the same time.

(c) (i) **Dribbling :** It means advancing with the ball bouncing on the floor.

(ii) **A board shot :** A shot attempted by a player and converted in the basket after touching the board.

(iii) **A three point shot :** A shot attempted from the entire floor area of the playing court except for

the area near the opponents' basket limited a semi circle radius of 6.75 mts.

(iv) **Team fouls :** A team foul is generally assessed at the same time as a personal foul is assessed to a player belonging to that team.

#### Answer 16.

(a) (i) **A blocking :** Blocking refers to the action taken by the player standing at the net to stop or alter an opponents attack. This technique is used to deflect the ball coming from an attacker.

(ii) **A misconduct :** When the player is not following the rules and playing with non-sportsman like spirit (abusing, hitting etc.) is a misconduct.

(iii) **An assisted hit :** A player takes support from a team-mate or any object in order to reach the ball within the playing area.

(iv) **A consecutive contact :** A player may not hit the ball 2 times consecutively except when blocking, provided the contacts take place simultaneously. However, a player may make consecutive contact on the teams first team contact, provided the contacts occur during one action.

(b) (i) **A First Referee :**

The duties of the First Referee are :

1. Inspects the conditions of the playing area, the balls and other equipments.
2. Performs the toss with the team captains.
3. Controls the teams' warming-up.
4. Request timeout.
5. To issue warnings to the teams.
6. To sanction misconduct and delays.
7. **To decide upon :**

(a) The faults of the server and of the positions of the serving team, including the screen.

(b) The faults on playing the ball.

(c) The attack hit faults of libero and the back-row players.

(d) A completed attack hit made by a player on a ball coming from an overhead pass with fingers by the libero in his/her front zone, or its extension.

(e) The ball crossing the lower space under the net.

8. At the end of the match, he/she checks the score sheet and signs it. (Any three)

(ii) **An Assistant Referee :**

1. At the start of each set, at the change of courts in the deciding set and whenever necessary, he/she checks that the actual positions of the players on court correspond to those on the line-up sheets.

2. During the match the assistant referee decides, whistles and signals :

(a) Penetration into the opponent's court, and the space under the net.

(b) Positional faults of the receiving team.

(c) The faulty contact of the player with the net at its lower part or with the antenna on his/her side of the court.

(d) Any completed block by a back-row player or an attempt to block by the libero.

(e) The contact of the ball with an outside object.

(f) The contact of the ball with the floor when the first referee is not in the position to see the contact.

(g) The ball that crosses the net totally or partly outside the crossing space to the opponent's court or contacts the antenna on his/her side of the court.

(h) He is incharge of all substitutions, timeouts and the actions of the scorer's table.

3. At the end of the match, he/she signs the score sheet.

(iii) **A captain on the court :**

1. Signs the score sheet.

2. Represents his team during the toss.

3. He may ask authorisation from the referees to change uniforms or equipments.

4. He submits the report to the referee involved the requests or questions properly submitted by his teammates during interruptions.

5. He is the only person authorised to ask for an explanation on the application or interpretation of the rules. If the explanation or interruption does not satisfy him, he must immediately protest to the referee and his protest is to be registered on the score sheet at the end of the match.

6. He is the only person who may ask the first referee to check the net, the floor, the ball or to verify the positions of the opponents, etc.

7. He has the right to request legal interruptions in the game.

8. Thanks the referees and signs the score sheet to ratify the outcome.

9. If he previously submitted a protest to the first referee, he may confirm it in writing on the score sheet.

(Any three)

(c) (i) **Rotation :** The rotation order as recorded on the score sheet at the beginning of each set must remain the same throughout that set. When the team receiving the serve wins the rally or the

opponent commits a fault, and the players must be rotated one position clockwise. A different rotation order for each new set may be used by the team and any player recorded on the score sheet may be registered in the new starting line-up.

(ii) **A collective block :** If a block is carried out by 2 or 3 front line players placed close to each other, is known as collective block.

(iii) **Screening :** Screening is when the opposite team is serving and has its hitters, or offensive players, at the net purposely blocking the other team's view of their server.

(iv) **Technical time-outs :** For FIVB world and official competitions, in sets 1-4, two additional 60 second "technical time-outs" are applied automatically when the leading team reaches the 8th and 16th points. In the deciding (5th) set, there are no "technical time-outs", only two time-outs of 30 seconds duration may be requested by each team.

Answer 17.

(a) (i) **Officials appointed to conduct the match :**

1. Referee — 2 (First and second)

2. Scorer — 2

3 Line men — 4

(ii) **Rally point :** A rally is the sequence of playing actions from the moment of the service hit by the player until the ball is out of play and point is gained by a team is called rally point.

(iii) Coach of the team requests for a substitution.

(iv) When the team which is serving (service side) commits a foul point it will be counted in opponents score and service will change.

(b) (i) 1. Unable to serve the ball successfully over the net.

2. Stepping over or across the line while serving.

3. When the service ball crosses the net out of antenna.

(ii) **Three types of delays are :**

1. When the substitution is made.

2. When the improper requests are made.

3. Time outs and technical time-outs.

(iii) **Procedure of substitution :**

1. Substitution must be carried out within the substitution zone.

2. At the moment of the substitution request the substitute player must be ready to enter the court standing close to the substitution zone.

3. When the referee gives signal to the player, he enters in the play field.

(c) Refer to ICSE Paper 2019, Answer 16 (c).



## QUESTIONS

### (Two Hours)

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **all** questions from **Section A** and **any four** question from **Section B**.

The intended marks for question or parts of questions are given in brackets [ ].

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) Give any two points of differences between fixed and saving deposits. [2]
- (b) Explain the meaning of Productivity of Land. [2]
- (c) Mention the two sources of revenue for the government. [2]
- (d) Explain any two duties of a consumer. [2]
- (e) Define the term capital as a factor of production. [2]

#### Question 2.

- (a) What is meant by proportional tax? [2]
- (b) Give any two points of differentiation between creeping inflation and running inflation. [2]
- (c) How does the price of a commodity affect the supply of a commodity? [2]
- (d) Mention the first four stages of evolution of money. [2]
- (e) Explain any one disadvantage of the barter system of exchange. [2]

#### Question 3.

- (a) What is consumer awareness? [2]
- (b) Define the term market. [2]
- (c) Explain any one type of public debt. [2]
- (d) What does public finance mean? [2]
- (e) Give any two points of differentiation between perfect and monopolistic competition. [2]

#### Question 4.

- (a) Explain the meaning of Composite Demand with the help of an example. [2]
- (b) Define the term Money. [2]
- (c) What is demonetisation? [2]

- (d) Mention any two objectives of Goods & Services Tax (GST). [2]
- (e) State two points of difference between revenue expenditure and capital expenditure. [2]

### SECTION-B (40 Marks)

(Attempt **any four** questions from this Section)

#### Question 5.

- (a) (i) What is meant by Efficiency of labour? [5]
- (ii) State any four reasons for low efficiency of labour in India.
- (b) Explain any five ways by which consumers are exploited in India. [5]

#### Question 6.

- (a) With reference to demand: [5]
- (i) Explain the law of demand.
- (ii) Draw a diagram representing law of demand.
- (b) Explain any five factors affecting the demand for a commodity. [5]

#### Question 7.

- (a) Define land. Explain any four characteristics of land. [5]
- (b) Briefly explain any five rights of a consumer. [5]

#### Question 8.

- (a) Explain briefly any five merits of Indirect taxes. [5]
- (b) What are the reasons for growth of public expenditure in India? [5]

#### Question 9.

- (a) Explain any five characteristics of labour as a factor of production. [5]
- (b) Mention five points of difference between a commercial and a Central Bank. [5]

#### Question 10.

- (a) (i) What do you understand by relatively inelastic demand? [5]
- (ii) Draw a well labelled diagram to show relatively inelastic demand.
- (b) (i) What is the meaning of demand pull inflation? [5]
- (ii) Explain any three causes of demand pull inflation.

## ANSWERS

## SECTION-A

## Answer 1.

(a) Difference between fixed and saving deposits are:

1. Fixed deposits are made for a fixed period of time whereas saving deposits are available on demand and money can be withdrawn by cheques.

2. Higher rate of interest is paid on the fixed deposit than saving deposits.

(b) Productivity of land means total amount of quantity produced, divided by total units or amount of land required or used.

Therefore,

Productivity of land =

$$\frac{\text{Total amount of quantity produced}}{\text{Total units of land used}}$$

(c) Two sources of revenue for the government:

1. Tax
2. Profits received from public sector units

(d) Two duties of a consumer are:

1. To check the maximum retail price of a product. Consumer must not pay price more than MRP.
2. To check the expiry date of the product.

(e) Capital as a factor of production refers to the produced means of production. It is the only part of wealth which is used for further production. According to Samuelson, "Capital goods are produced goods that can be used as factor input for further production."

## Answer 2.

(a) If the tax is imposed at the same rate on the persons of different income level, it is called as proportional tax. For example, the same 5% taxes are levied on the person earning ₹ 5,000 and the person earning ₹ 500.

| S. No. | Creeping Inflation                                                                                                               | Running Inflation                                                                                                                                 |
|--------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | An inflation is said to be creeping inflation when there is a sustained rise in inflation at a mild rate, say 2% to 3% per year. | When the sustained rise in aggregate price level is about 10% per year it is called running inflation. It normally shows the two-digit inflation. |

|    |                                                      |                                                                   |
|----|------------------------------------------------------|-------------------------------------------------------------------|
| 2. | It is necessary for the economic growth of a country | It is warning signal for the economy. It is not good for economy. |
|----|------------------------------------------------------|-------------------------------------------------------------------|

(c) The supply of a particular commodity is directly related with price of the commodity. Higher is the price of a commodity, larger will be the quantity supplied and vice versa.

(d) First four stages of evolution of money are:

1. Commodity money
2. Metallic money
3. Paper money
4. Bank or credit money

(e) **Double coincidence of wants:** This is one of the important requirements for the barter system to be successful. This means that the two individuals are in possession of such goods which they are willing to exchange for the satisfaction of their wants. It is not so easy to find such person who is having good you want, and he wants the good you are having. Thus, it is the main disadvantage of the barter system of exchange.

## Answer 3.

(a) Consumer awareness is the knowledge that the consumer should have about his or her legal rights and duties. It is necessary for a consumer to follow these rights as it is implemented for the protection of the consumer, so that the consumer is not exploited by the seller of the products.

(b) In economics market is defined as an institutional arrangement or system through which buyers and sellers come in contact with each other for carrying out transactions of a specified commodities at a specified price.

According to **Chapman**, "The term market refers not necessarily to a place but always to commodity or commodities and the buyers and sellers of the same who are in direct competition with each other."

(c) **External Public Debt:** When a loan is taken by the government from abroad or from an international organization then it is called as external public debt. There are different sources of external public debt for the Government of India:

1. Different foreign or international institutions like IMF, ADB, World Banks etc.

2. Different foreign countries like Japan, France, (e) USA, UK etc.

- (d) Public finance is a study of income and expenditure of the government at the central, state and local levels.

According to **Dalton**, "Public finance deals with the income and expenditure of public authorities and with the manner in which one is adjusted to the other."

- (e) Difference between Perfect Competition and Monopolistic Competition:

| S. No. | Perfect Competition               | Monopolistic Competition                   |
|--------|-----------------------------------|--------------------------------------------|
| 1.     | Products are homogeneous.         | Products are differentiated.               |
| 2.     | There are no advertisement costs. | There are substantial advertisement costs. |

#### Answer 4.

- (a) A commodity can be used for several purposes and its demand is directly linked to various uses. Such a demand is known as composite demand. For example, milk is used for making tea, coffee, curd, sweets as well as for direct consumption. The total demand of milk in the market for all such purposes is called as composite demand.

- (b) Money is anything which is generally acceptable as a medium of exchange and at the same time acts as the measure and store of value and standard of deferred payments.

According to **Crowther**, "Anything that is generally acceptable as a means of exchange and acts as a measure and store of value is money."

- (c) Demonetisation refers to an action taken by the government or the Central Bank of the country to cancel the legal tender status of some of the denominations of the currency of the country. This decision was taken by the Central Government on 8th November, 2016. In the demonetisation of 2016, The Indian government cancelled the legal tender status of ₹500 and ₹1000 notes. It was done to unearth the black money earned by illegal means and to neutralise the fake currency.

- (d) **Two objectives of GST are:**

1. To develop a simple indirect tax system that is based on One Nation–One Tax principle.
2. To develop a system of consumption based tax instead of manufacturing based tax.

| S. No. | Revenue Expenditure                                                                               | Capital Expenditure                                                                                |
|--------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1.     | It neither creates any asset for the government nor reduces any liability of the government.      | It either creates some asset for the government or reduces any of the liability of the government. |
| 2.     | This expenditure is incurred on the normal working of the government and is off recurring nature. | This expenditure is of non-recurring nature.                                                       |

#### SECTION-B

#### Answer 5.

- (a) (i) Efficiency of labour means the productive capacity or productivity of labour. In other words, it means the productive capacity of a worker to do more or better work or both during a specified period of time. Following are the aspects to be kept in mind to determine the efficiency of labour:

1. The productivity of a worker.
2. The quality of the goods produced by a worker.
3. The amount of time spent by a worker in manufacturing the goods.

If two workers are working under same conditions, the worker who can produce higher quantity and better quality of good in less time as compared to another worker is said to be more efficient.

(ii) **Four reasons for low efficiency of labour in India:**

1. **Low wages:** The wages of labourers in India tend to be low due to which their standard of living is also low. Consequently, workers are unable to afford healthy food and failed to keep themselves physically and mentally fit. They also have very less time for leisure and recreation. All these factors lead to low efficiency of workers.

2. **Migratory character:** A very high proportion of workers usually migrate from villages to cities in search of work when the agricultural activities are minimum. However, when the agricultural activities start, such workers either leave work or do not go to work regularly. Such irregularity lowers the rate of production and hampers the productivity of other labourers as well.

3. **Education and training:** The workers do not have proper education and practical training about the work. To overcome this, the government is providing training to lot of workers under



various schemes so that they get the required practical training and necessary education.

**4. Inefficient management:** The managers and organizers usually are not interested in understanding the psychology of labourers or improving working conditions for labourers. They do not care to spend resources to ensure healthy and full congenial work environment for workers as they are more interested in exploiting the labour for their business profits. Such attitude of employers ultimately leads to a fall in the overall productivity of the workers.

(b) Consumers are exploited in India by following ways:

1. One of the ways by which consumers are exploited is underweight and under measurements. The goods being sold in the market are sometimes not measured or weighed correctly which results in exploitation of consumers by manufacturers or traders. Consumers get less quantity after paying the price for the specified quantity of the commodity.

2. Another way of exploiting consumers are selling goods of substandard quality. Selling of consumables beyond their expiry dates and supply of deficient or defective home appliances are generally the regular grievances of consumers. This also includes the sales of medicines after expiry date and selling spurious drugs that is sub-standard drugs.

3. Charging high price and selling duplicate articles is also a way to exploit consumers in India. Very often the traders charge a price higher than the prescribed retail price and in the name of genuine parts for goods, fake or duplicate items are being sold to the consumers. According to a report, on the occasion of Deepavali 2018, many buyers who purchased online products, complained of receiving fake brands.

4. Most of the consumers are exploited by hidden price component also. A lot of companies give offers that invite the consumers to buy products at very low prices or they make exchange offers or offers like buy one get one, which are good enough to leave the innocent consumers interested but can have some or the other hidden price component attached to it which the consumer is forced to fulfil and he gets cheated.

**Answer 6.**

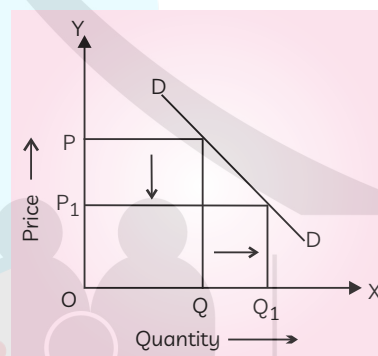
(a) (i) Law of demand expresses functional relationship between price and that of quantity demanded of a commodity. It has been universally observed that people buy more quantity of a good when it is available at a low price and quantity

purchased declines with an increase in its price. Thus, the law of demand states that there is an inverse relationship between price and quantity demanded of a commodity. When price increases, demand decreases and vice-versa. The slope of demand curve is downward due to the negative relationship between price and demand.

**Assumptions of Law of Demand:**

1. Income of the consumer remains same during the period under consideration.
2. The prices of related goods remain unchanged during the period.
3. The preferences and tastes of consumers must remain the same during the period of consumption.
4. The quality of similar goods available in the market is almost unchanged.
5. During the period under study, it is presumed that prices are not likely to change in near future.

(ii)



(b) **Factors affecting demand for a commodity are:**

**1. Own price of the commodity:** Demand for a commodity depends on its price. There is an inverse relationship between own price of the commodity and demand for a commodity. As price rises, for normal good, quantity demanded falls and vice-versa. However, there are exceptions, *i.e.*, for Giffen goods, as price rises, quantity demanded also rises.

**2. Income of the consumer:** The income level of the consumer is another important factor affecting demand for a commodity. In case of normal goods, there is a positive relationship between income of the consumer and demand for a commodity which means demand for commodity increases with increase in income and decreases with decrease in income. But in case of inferior goods, there is a negative relationship between income of the consumer and demand for inferior goods. Thus, demand for inferior goods decreases with increase in income and increases with decrease in income.



**3. Price of related goods:** Demand for a commodity also depends upon the price of related goods. Related goods may be of two types *i.e.* substitute goods and complementary goods. Substitute goods are those goods which can be used in place of each other like Pepsi and Coke. On the other hand, complementary goods are those goods which jointly satisfy a particular want like pen and ink. There is positive relationship between price of substitute goods and demand for the commodity. On the other hand, there is negative relationship between price of complementary goods and demand for the commodity. For example in case of substitute goods, if price of Pepsi increases the demand for Coke will increase and in case of complementary goods, if price of pen increases then demand for ink will decrease.

**4. Tastes and preferences of the consumer:** Demand for a particular commodity depends on the pattern of taste and preferences of the consumers. If there is a change in the tastes and preferences of consumers in favour of a commodity, its demand will rise at each price level. Similarly, change in taste against a commodity leads to a fall in its demand at each price level.

**5. Expectation of future prices:** The current demand of a product also depends on its expected price in future. If future price is expected to rise, its present demand immediately increases because the consumer has a tendency to store it at low prices for his future consumption. If however the price of a product is expected to fall then it has a tendency to postpone its consumption and as a result the present demand would also fall.

#### Answer 7.

- (a) Land refers to the soil that is used for cultivation or for construction. But it has a very broad meaning in economics. According to **Marshall**, "By land is meant not merely land in the strict sense of the word, but the whole of the material and forces which nature gives freely for man's aid in land and water, in air, light and heat." In other words, it implies all the resources available both upper and lower surfaces of the earth.

#### Characteristics of land:

**1. Free gift of nature :** Land is the direct gift of nature. No cost or no pain or no sacrifice or no human effort is required to produce land. Hence, land is original and cannot be destroyed.

**2. Limited in supply:** The amount of land is given and limited. Its supply cannot be increased or decreased in any circumstances. It may vary for an individual, but completely fixed or limited for the society or an economy as a whole.

**3. Heterogenous:** The productivity differs from place to place or from nature to nature. Some lands are highly fertile or productive as compared to other land. Therefore, Ricardo pointed out that in terms of fertility there are marginal lands, intra-marginal lands and sub-marginal lands.

**4. Passive factor:** Land itself cannot able to produce any goods or services. Hence, it is passive factor of production. It requires other factors of production to produce commodities.

#### (b) Rights of a Consumer:

**1. Right to safety :** It means right to be protected against the marketing of goods and services, which are hazardous to life and property and it includes concern for not only meeting their immediate needs, but also fulfills long-term interests. Before purchasing, consumers should be informed of the products and services. They should preferably purchase quality marked products, such as ISI, AGMARK, etc.

**2. Right to be informed:** It means right to be informed about the quality, quantity, potency, purity, standard and price of goods so as the consumer should insist on getting all the information about the products or services before making a choice or a decision to enable him to desist from falling prey to high pressure selling techniques.

**3. Right to choose:** It means right to be assured, wherever possible, of access to variety of goods and services at competitive price, satisfactory quality and service at a fair price. It also includes right to basic goods and services. This is because of denial for the majority of its fair share. This right can be better exercised in a competitive market where a vast variety of choices are available to the consumer. The producer/supplier should not force the customer to buy a particular brand only.

**4. Right to be heard:** It means that consumers interests will receive due consideration at appropriate forums. It also includes right to consumer welfare. The consumers should form non-political and non-commercial consumer organizations and other bodies to give them unity and a platform to voice their problems.

**5. Right to seek redressal:** It means right to seek redressal against unfair trade practices or unscrupulous exploitation of consumers. Consumers must make complaint for their genuine grievances. They can also take the help of consumer organisations in seeking redressal of their grievances.

#### Answer 8.

##### (a) Merits of Indirect Taxes:

**1. Convenient:** They are mostly levied on commodities and are paid by consumers when they buy them in the market. The amount of the tax is included in the price of the commodity and consumer pays the tax without experiencing any difficulty.

**2. Non-discriminatory:** Indirect taxes are non-discriminatory in the sense that they are paid by all the sections of the society at the time of making purchases of goods in the market in the form of GST, sales tax or custom duty.

**3. Productive and elastic:** By increasing the rate of taxes, the government can secure an adequate income from such taxes. Income from such taxes goes on increasing with the increase in population and production in the country.

**4. Wide coverage:** Indirect taxes can be imposed on a large variety of goods so that most of the people contribute to the revenue of the government that is the tax system gets widened.

**5. Socially desirable:** Indirect taxes are levied on intoxicants like wine or opium etc. and serve a great social purpose because they limit the consumption of such harmful commodities by the public.

##### (b) Reasons for growth of public expenditure in India:

**1. Development of interior areas:** To solve the problem of inequality of income and regional disparities in India, the government has to take several programmes to develop the backward areas through the policy of industrialization which requires a huge expenditure.

**2. Defence expenses:** To protect India from external invasion from the hands of foreign countries, the government has to allot a huge amount of money in every five-years plan for National Defence. On the other hand government has to spend a lot to maintain law and order situation within the country.

**3. Infrastructural base:** In order to maintain the pace of economic development, each government has to invest on infrastructural facilities such as irrigation, transport and communications, electricity and power generation etc.

**4. Welfare activities:** According to **Professor Sen**, the development of a country depends on the amount of expenditure the particular government is willing to spend on the welfare activities within a country. For example, improvement of drinking water facilities, sanitation facilities, medical and public health etc.

**5. Prevention of monopoly:** In India, most of the big, private industries show a tendency towards concentration of economic power. Hence, the government has to spend huge amount of money to set up industries in the public sector which will curb the monopoly power of these private industries which requires a huge expenditure.

#### Answer 9.

##### (a) Characteristics of labour as a factor of production:

**1. Human factor:** Labour is not the free gift of nature. It is a human factor. It works physically as well as mentally. Labour has own judgement power and he works according to his willingness. Labour is not a machine; hence he requires leisure time after hard work.

**2. Mobile factor:** Labour is the only mobile and active factor of production. He can move from one place to another to produce goods and services. He also moves from one job to another job or from one occupation to another. Without labour, other factors of production cannot be able to produce goods or services by themselves.

**3. Perishable factor:** Labour cannot be stored for future use. It is the most perishable factor of production. If a labourer does not work on a day, his labour service for that day is wasted. Hence, labour has no alternative to sell his labour on that day for any wages paid to him. Thus, labour has very weak bargaining capacity.

**4. Heterogenous efficiency:** The efficiency of labourer is not homogeneous in nature. The efficiency level varies from labourer to labourer. The reason behind this is the difference of training skill, knowledge and experiences. Thus, the productivity of labour is also variable.

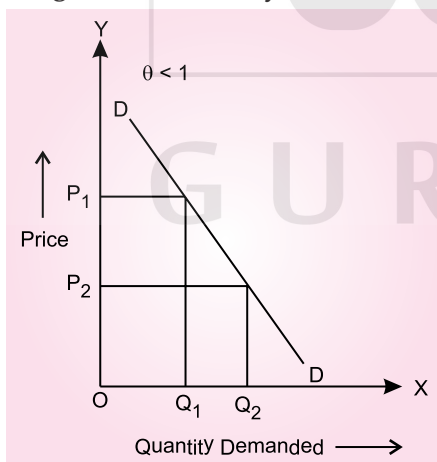
**5. Labour and labourer are inseparable:** Labour and labourer are inseparable from each other. Unlike other factors of production, such as land, capital etc., labour cannot be separated from labour. The use of labour service becomes meaningless if the labourer himself is absent from this place. He needs to be present to give his services.

##### (b) Difference between Commercial Bank and Central Bank:

| S. No. | Central Bank                                                                    | Commercial Bank                                                                                                                                                 |
|--------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | It is an apex institution of the monetary and banking structure of the country. | It is that financial institution which accepts deposits from the general public and advances loans to the public for consumption as well as investment purpose. |
| 2.     | It is owned by the government only.                                             | It is owned by both government as well as private bodies.                                                                                                       |
| 3.     | A country has only one Central Bank.                                            | A country has large numbers of commercial banks.                                                                                                                |
| 4.     | It is a note issuing authority.                                                 | It is not a note issuing authority.                                                                                                                             |
| 5.     | It focuses on growth and stability of the economy.                              | It focuses on profit maximisation.                                                                                                                              |

**Answer 10.**

- (a) (i) **Relatively inelastic demand:** When a substantial change in prices has little effect on extension or contraction in quantity demanded of the commodity, the demand is known as relatively inelastic demand. The demands for shoes, needles, etc., belongs to this class. In this case elasticity of demand is less than one. For example, if price increases by 20% then quantity demanded decreases by less than 15% etc., then it is a case of relatively inelastic demand.

**(ii) Diagram for relatively inelastic demand:**

- (b) (i) **Demand pull inflation:** Demand pull inflation is the phenomenon in which price increases in the economy because of an increase in demand. In economic terms, it is quite popularly quoted as “too much money chasing too few goods”. It usually starts with an increased demand which forces suppliers to increase the production but since increasing supply takes some time, there arises a scenario when there are too many buyers for the same number of goods leading to a misbalance in the price equilibrium. Suppliers react to such a scenario by increasing the prices and in turn shifting to a new equilibrium in the demand-supply curve.

**(ii) Causes of demand-pull inflation:**

1. **Increase in disposable income:** When the disposable income of the people increases it raises their demand for goods and services leading to demand pull inflation.

2. **Decrease in taxes or hoarding of black money :** Black money means unaccounted money. It is created through tax evasion and is responsible for price rise. Black money spent on non-productive activities like buying real estate, gold smuggling, luxurious living, etc. Black money generates holding of goods in the economy. Along with this, decrease in taxes also account for demand pull inflation as it increases the personal disposable income of the consumer and they are left with more income to spend on the goods and services which again increases the demand and creates demand pull inflation.

3. **Increase in population:** It is another important cause of demand-pull inflation. Increase in population refers to increase in demand of consumer goods which puts more pressure on existing supply of goods and services due to which demand increases and it results in increasing demand pull inflation. In other words, it can be said that when population increases, demand for goods increases and supply cannot increase in that proportion as it takes time to supply more goods and they are not able to manage the current demand of the goods and services, so they increase price which results in increasing demand pull inflation.





## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) What are normal goods ? Give two examples. [2]
- (b) State any two features of the Consumer Protection Act. [2]
- (c) A businessman stocks potatoes in the cold storage during the winter and releases that stock during summer. Will this be considered as production ? Give a reason for your answer. [2]
- (d) Mention two ways by which a worker benefits from division of labour. [2]
- (e) Give two assumptions of the law of supply. [2]

#### Question 2.

- (a) Briefly explain any two merits of direct taxes. [2]
- (b) Expand the term RTI. How does this help a citizen of India ? [2]
- (c) Define price elasticity of demand. [2]
- (d) What is food adulteration ? Mention any one harmful effect of food adulteration. [2]
- (e) What is degressive tax ? [2]

#### Question 3.

- (a) If a buyer buys less of a commodity when his income falls, how will his demand curve change ? Illustrate your answer with a diagram. [2]
- (b) State two factors which affect productivity of land. [2]
- (c) Give two differences between recurring deposits and fixed deposits. [2]
- (d) What is overdraft facility ? [2]
- (e) State any two reasons for the growth of public expenditure in a country like India in recent times. [2]

#### Question 4.

- (a) Draw a well labelled diagram showing the price elasticity of supply of a commodity starting from the origin. [2]
- (b) What is land in Economics ? [2]
- (c) Define supply. [2]
- (d) Indirect taxes are regressive in nature. How can they be made progressive ? [2]
- (e) The income earned by an entrepreneur is residual in nature. Explain. [2]

### SECTION-B (40 Marks)

Attempt any **four** questions from this Section

#### Question 5.

- (a) (i) State the law of demand. [5]
- (ii) Briefly explain any two reasons for its occurrence. [5]
- (b) Define inflation. Explain its impact on the producers and salaried class. [5]

#### Question 6.

- (a) (i) Define Public debt. [5]
- (ii) What are Redeemable debts ? [5]
- (iii) Mention two examples of unproductive debt. [5]
- (b) Briefly explain the following with reference to the barter system of exchange : [5]
- (i) Lack of common measure of value.
- (ii) Lack of standard of deferred payments.

#### Question 7.

- (a) Explain the following functions of the Central Bank : [5]
- (i) Fiscal agent of the government.
- (ii) Advisor to the government. [5]
- (b) Explain any five characteristics of land. [5]

#### Question 8.

- (a) Discuss the risk bearing and decision-making functions of an entrepreneur. [5]
- (b) What is Cost Push inflation ? Briefly explain three causes of cost push inflation. [5]

#### Question 9.

- (a) (i) Define Tax. [5]
- (ii) Give three differences between direct taxes and indirect taxes. [5]
- (b) (i) Define capital formation. [5]
- (ii) Briefly discuss the process of capital formation. [5]

#### Question 10.

- (a) Define and draw the following : [5]
- (i) Relatively elastic supply.
- (ii) Relatively inelastic demand. [5]
- (b) Briefly discuss any two quantitative measures adopted by the Reserve Bank of India to control credit. [5]



## ANSWERS

## SECTION-A

## Answer 1.

- (a) Normal goods refer to the goods for which the quantity demanded increases as the income of consumer increase. Normal goods have a positive income elasticity of demand. However, the value of income elasticity of demand is less than one for normal goods. Two examples of normal goods include AC, cooler, etc.
- (b) Two features of the Consumer Protection Act are as follows :
1. The Act applies to all the sectors of an economy such as private, public and cooperative.
  2. The Act provides the right to information, safety, representation, choice, education and redressal to consumers grievances.
- (c) Yes, the stock of potatoes will be considered as production as the potatoes will be consumed at some future date when the producer sells them.
- (d) Two ways by which workers benefit from division of labour are as follows :
1. Division of labour ensures that an individual with required set of skills is appointed for a job. So, division of labour provides opportunities for the best utilisation of a worker's skills.
  2. When workers perform same task again and again, they are likely to innovate and invent new and better methods of doing the job. So, the workers are likely to engage in innovations which in turn increase their efficiency.
- (e) Two assumptions of the law of supply are as follows :
1. Law of Supply assumes that the cost of factors of production do not change.
  2. Law of Supply assumes that the price of other related goods remains the same.

## Answer 2.

- (a) Two merits of direct taxes are as follows :
1. Direct taxes are equitable in nature, *i.e.*, direct taxes are levied according to the taxable capacity of an individual. For example, people with higher income pay higher taxes than people with lower income.
  2. Direct taxes are elastic in nature. The level of tax can be varied according to the requirement of the government and income level of the people. If the government needs higher revenue or if the income of people goes up, higher taxes can be levied. Also, the amount of tax levied can be lowered when the incomes of people go down.
- (b) RTI stands for Right to Information. This RTI act gives citizens of India access to records of the central and state governments.

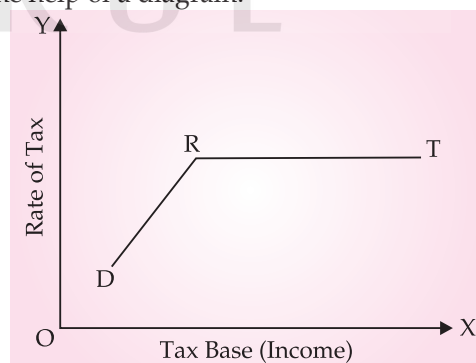
It helps citizens in accessing the information in government records except the information that needs to be protected in public and national interest.

- (c) The price elasticity of demand measures the degree of responsiveness of the quantity demanded of a good with respect to a change in its price. If the change in quantity demanded of a good is greater than the change in its price, we say that the demand for the good is elastic. When the change in quantity demanded for a good is less than the change in the price of the good, the demand for the good is inelastic. When the change in quantity demanded for a good is equal to the change in the price of the good, the demand for the good is unit elastic.

Price elasticity of demand can be calculated by the following formula :

$$E_d = \frac{\text{Percentage change in Demand for a commodity}}{\text{Percentage change in Price of the commodity}}$$

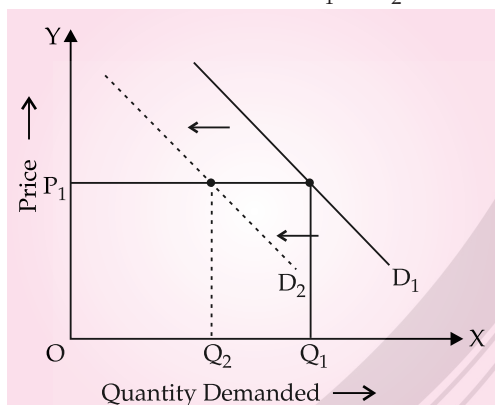
- (d) Food adulteration refers to lowering the quality of a food product by either adding an ingredient of inferior quality in the food or extracting a valuable ingredient from the food. Food adulteration can be done by contaminating food either by adding physical ingredients or by changing the chemical properties of food. Food adulteration has several harmful effects ranging from causing toxicity in human body, which can lead to partial paralysis and cholera.
- (e) The degressive tax system is a mixture of proportional and progressive tax system. Under this system the rate of tax increases upto a certain limit but after that a uniform rate is charged. The result of this tax is that the higher income group makes less sacrifice than the lower income group. The degressive taxation can be illustrated with the help of a diagram.



The diagram indicates degressive taxation. In this, rate of tax increases to a certain limit (up to the point R). Thereafter the uniform tax is charged.

**Answer 3.**

- (a) If a consumer buys less of a good when his income falls, the good is a normal good. The demand curve for the good will shift leftward as the consumer demands lower quantity at same price. For instance in the diagram given below at price  $P_1$  the quantity demanded is  $Q_1$ . When the income of the consumer decreases the quantity demanded decreases to  $Q_2$  as a result the demand curve shifts leftward from  $D_1$  to  $D_2$ .



- (b) Two factors that affect the productivity of land are as follows :

**1. Means of irrigation :** The productivity of land depends on the means of irrigation such as tube wells, canals, rivers and tributaries. The lands that have sufficient amount of irrigation facilities are more fertile than the lands which lack irrigation facilities.

**2. Proper utilization of land :** The productivity of land also depends on its utilization. For instance, black soil is extremely good for the production of cotton. However, if it is used for producing sugarcane the productivity of land will be poor.

- (c) Two differences between recurring deposits and fixed deposits are as follows;

| Fixed Deposits                                                                                                                                      | Recurring Deposits                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1. The purpose of fixed deposit is to help individuals mobilize idle funds and earn higher rate of interest as compared to regular savings account. | The purpose is to help individuals inculcate a habit to save money.                      |
| 2. Fixed deposits can be made for a period ranging from 7 days up to 10 years.                                                                      | Recurring deposit can be made for a period ranging from 6 months up to maximum 10 years. |

- (d) It is the arrangement with the bank where the current account holder is allowed to withdraw more than the available balance from his account upto a specified limit. It is allowed for a short period and interest is charged on it. Generally overdraft

facility is allowed against security of some assets or personal security of the account holder. It is a temporary facility.

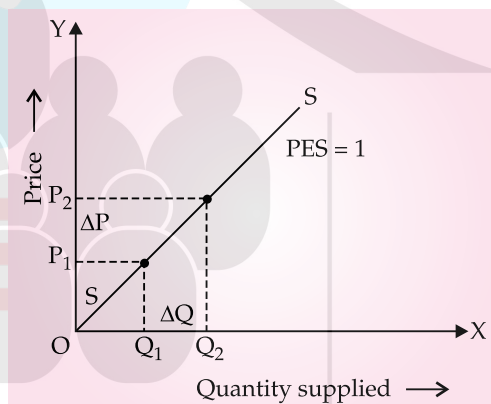
- (e) Two reasons for growth of public expenditure in India in recent times are as follows :

**1. Satisfying the defence needs :** International political situation is uncertain and insecure. People are always afraid of a war. Hence, Every nation must be strong enough to protect itself to the extent possible for it. This has led to the increase in defence expenditure.

**2. Expenditure on administrative machinery :** There has been an increase in the administrative machinery with the growth of population and economic development in the country. Higher expenditure has to be incurred on administrative machinery such as police, defense, tax administration and public sector enterprises.

**Answer 4.**

- (a) The supply is unitary elastic when the supply curve begins from origin. This is because along the supply curve starting from origin, the change in quantity demanded is equal to the change in price.



- (b) Land, in economics, means not only the surface of the earth but all those free gifts of nature. For example, mineral resources, forest resources and indeed anything that help us to carry out the production of goods and services, but is provided by nature free of cost, the supply of which can be regulated.

- (c) Supply is defined as the quantity of a commodity which a producer or seller is willing to produce and offer for sale at a particular price during a given period of time. For example, if at a price of ₹ 10, sellers are willing to provide 4 units of a commodity in a market, then supply of the commodity is 4 units.

- (d) Indirect taxes can be made progressive by imposing high taxes on luxury items and by exempting items of necessary consumption from taxation.

- (e) Yes, income of an entrepreneur is residual in nature. This is because an entrepreneur bears risk. Entrepreneur earns profit, only after the payments made to other factors of production (like land, labour and capital) employed by him on the basis of contractual income. (i.e., rent, wages and interest).

### SECTION-B

#### Answer 5.

- (a) (i) Refer to ICSE 2020 Answer Q. 6 (a) (i).  
 (ii) Two reasons for the law of demand to occur are as follows:
- 1. Income effect:** The foremost reason for the law of demand is that at a lower price, a consumer can afford to buy more of a commodity so the demand is higher at a lower price, and vice-versa.
  - 2. Substitution effect:** The law of demand also persists because there can be substitutes of a good. Therefore, as the price of a good increases, consumers are likely to consume the substitute goods and move away from the good whose price is higher. This will reduce the demand of the commodity.
- (b) Inflation refers to an increase in the general price level in an economy. Basically, it is the situation when there is a sustained increase in prices of goods and services, which leads to an increase in the cost of living termed as inflation.

#### Impact of inflation on producers :

The rising prices are likely to stimulate production of goods and services. Producers gain as the value of their stock rises. As producers expect to earn higher profits, they try to increase the production by utilizing the available resources. However, if inflation occurs when the economy is at full employment, the level of production cannot increase. The producers may stock and hoard output in the expectation of getting higher prices. There can also be a negative impact on producers as production may come to halt due to increased cost of raw material.

#### Impact of inflation on salaried persons :

When there is high inflation in an economy, the poor and middle-class section of the society is likely to suffer as their salaries tend to be fixed. But, the price of goods and services continue to rise. The salaried people suffer loss as their purchasing power falls as the prices rise faster than the rise in their income.

#### Answer 6.

- (a) (i) Public debt refers to the loan raised by the government within or outside the country. Every government has to borrow when its expenditure exceeds its revenue. Public debt includes items such as treasury bill, special bearer bonds, market loans and special loans and securities issued by the Reserve Bank. It also includes the outstanding external debt.

(ii) Redeemable debt is one which is repayable by the government after a fixed period of time. The interest on this type of loan is paid by the government regularly. When the debt matures the government pays back the principal amount to the lender. For the repayment of the principal amount either the government creates a fund in which a fixed amount is deposited every year or it raise the amount through taxation.

(iii) Two examples of unproductive debt are loan taken for lavish public administration expenditure, financing a war.

- (b) (i) **Lack of common measure of value :** Under barter system, goods were valued in terms of other goods. Therefore, a car would be valued in terms of horses or buffaloes or any other good. Also, there does not exist a common measure for calculating the value of goods and services. As a result, the value of goods and services cannot be accounted.

(ii) **Lack of standard of deferred payments :** Under barter system, it is very difficult to use a good as a standard of deferred payments. For example, if you borrow some rice from somebody it is very difficult to return this rice in terms of rice of the same quality. Money serves as a standard of deferred payments and resolves this issue.

#### Answer 7.

- (a) (i) **Fiscal agent to the government:** The Central Bank acts as a financial agent and advisor to the government. As a fiscal agent of the government, the Central Bank manages the accounts of government banks and also manages public borrowings. The Central Bank also buys and sells government securities on behalf of the government. It represents the government in the international financial institutions like IMF and the World Bank.

(ii) **Advisor to the government:** As an advisor to the government, the Central Bank aids the government in framing policies to regulate monetary market. It advises the government on all financial and economic matters.



(b) The characteristics of land are as follows :

1. Land is a free gift of nature.
2. Land is not a man-made resource, and the availability of land is limited so it is a fixed resource.
3. Land is immobile in nature which means land cannot be moved from one place to another.
4. Land is not productive unless some human effort is utilized on the land.
5. Land fertility varies across different pieces of land. Generally, land that has sufficient irrigation facilities in the surrounding tends to be more fertile.

**Answer 8.**

(a) Risk bearing and decision-making are the most important and specific functions of an entrepreneur. Every business involves some amount of risk. The production of goods and services is always related to future demands. The future demand is uncertain and unpredictable, because it is influenced by the changes in fashion or taste and liking of the consumers. The price structure, value of money, climatic conditions and government policies are some other important factors that affect the demand of a commodity. All these factors are variable and as such an exact estimation of these factors is a difficult exercise. Since this unpredictable task is undertaken by the entrepreneur, he has to bear the risk and make decisions that lead to maximization of profits and minimization of costs.

**Decision-making Function:**

1. Selection of the commodity to be produced.
2. Selection of design and quality of the product.
3. Selection of location of the plant.
4. Decision regarding scale of production.
5. Selection of techniques of production.

(b) Cost-push inflation is a situation in which the overall price level increases in an economy due to the increase in costs of production such as wages of labour and price of raw materials used in the production process. The causes of cost-push inflation are as follows:

1. **Higher taxes:** Another important cause of cost push inflation is the imposition of higher taxes on commodities like excise duties, sales tax, etc. These taxes are largely passed over by the producers to the consumers by the amount of tax.
2. **Wage inflation:** Wage inflation occurs when workers force firms to raise their wages. Firms, in turn, pass higher costs to consumers in terms of higher prices.

3. **Natural disasters :** Natural disasters lead to inflation as the resources are destroyed and the supply of raw materials is reduced thus the production of final goods and services is halted.

**Answer 9.**

(a) (i) A tax is a fee that is levied on individuals and firms by the government of a country. The revenue generated from taxes is used by the government for developmental and public works. Taxes can be direct and indirect in nature.

(ii) Three differences between direct and indirect taxes are as follows :

| Direct Tax                                                                                                                                                                                                                                                           | Indirect Tax                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Direct tax refers to the tax that is levied directly on an individual's income or wealth. It is paid by the individuals directly to the government. Examples of direct tax include income tax, property tax, wealth tax, corporate tax, import and export duties. | Indirect tax refers to the tax that is levied on the goods and services consumed by an individual. The amount or proportion of tax is included in the price of the good or service. So, it is indirectly paid to the government by the consumers. Examples of indirect tax include entertainment tax, service tax, custom duty and excise duty. |
| 2. The burden of the direct tax has to be borne by the tax payer.                                                                                                                                                                                                    | The burden of indirect tax can be shifted on the consumers.                                                                                                                                                                                                                                                                                     |
| 3. Direct taxes are progressive in nature.                                                                                                                                                                                                                           | Indirect taxes are regressive in nature.                                                                                                                                                                                                                                                                                                        |
| 4. Tax evasion is possible.                                                                                                                                                                                                                                          | Tax evasion is not possible because it is included in the price of goods and services.                                                                                                                                                                                                                                                          |

(b) (i) Capital formation refers to an increase in the stock of real capital in a country. Capital formation involves making more capital goods such as machines, equipment, tools, electricity, factories and transport, which are used in the production of goods and services. To increase the stock of capital, saving and investment are essential.

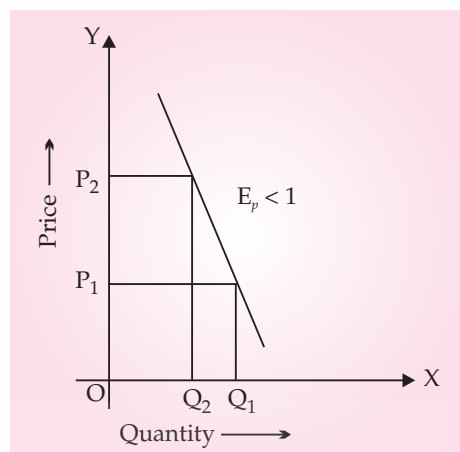
Capital formation involves making of more capital goods such as machines, tools, factories, transport equipment etc.

(ii) **Process of Capital Formation :** To accumulate capital goods, current consumption needs to be



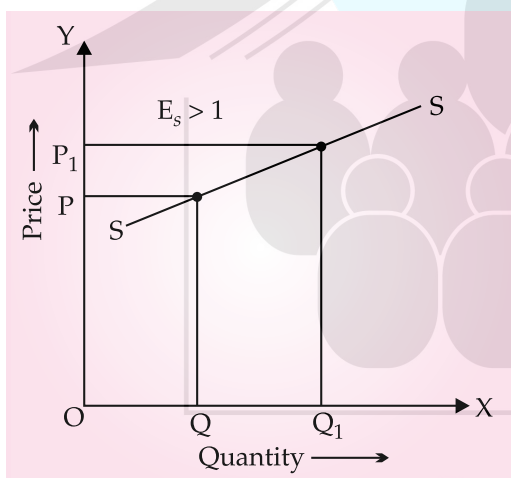
sacrificed. When people abstain from current consumption, the society will devote more resources to capital formation. If society consumes everything it produces and there is no saving, the productive capacity of the economy will diminish in future as the existing capital equipment depreciates.

Therefore, the process of capital formation requires people to save and the savings of the people needs to be invested in the production of capital goods. Therefore, it is essential to mobilize the savings of the people so that the savings reach entrepreneurs who can invest in capital production.



#### Answer 10.

- (a) (i) **Relatively elastic supply** : The supply of a commodity is said to be relatively elastic when the change in quantity supplied of a commodity is greater than the change in price of the commodity. A relatively elastic supply curve is flatter and originates from the y-axis. A relatively elastic supply indicates that the quantity supplied is highly responsive to change in price of the commodity.



- (ii) **Relatively inelastic demand** : The demand of a commodity is said to be relatively inelastic when the change in quantity demanded of a commodity is lesser than the change in price of the commodity. A relatively inelastic demand curve is steeper. An inelastic demand indicates that the quantity demanded of a commodity is not very responsive to the changes in price of the commodity.

- (b) Two quantitative measures used by RBI to control credit are as follows :

**1. Open market operations** : Open market operations refer to the buying and selling of government securities by the central bank from the public and banks. When the central bank intends to contract credit during inflation, it sells government securities which are usually purchased either by commercial banks or by their customers. Consequently, cash reserves with the banks are reduced and so does their lending power. On the other hand, when the bank desires to expand credit during deflation in the economy, it starts purchasing such securities from banks. Therefore, the policy of open market operation brings about a change in the total volume of credit created by the commercial banks.

**2. Bank rate policy** : RBI can alter the bank rate, i.e., the rate of interest that the commercial banks pay to the RBI when they borrow from the RBI in situations of reserve shortage. The bank rate policy is used by the RBI to regulate money supply in the economy. If the RBI increases the bank rate, borrowing becomes costly and the commercial banks tend to maintain high reserve deposits with the RBI. Thus, the amount of money available to commercial banks for lending to general public goes down, and the money supply reduces in the economy. On the other hand, if the RBI reduces the bank rate, the commercial banks tend to borrow more from the RBI. Thus, the amount of money available with commercial banks for the purpose of lending to people increases, which increases the money supply in the economy.

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## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) Give two reasons as to why the division of labour is an advantage to the producer ? [2]
- (b) Define the term consumer awareness. [2]
- (c) Why do small farmers suffer during inflation ? [2]
- (d) Which are the two sources of public revenue ? [2]
- (e) Define the term labour as a factor of production. [2]

#### Question 2.

- (a) Explain any one factor that affects the supply of a commodity. [2]
- (b) What do you understand by the term 'near money' ?\*\* [2]
- (c) A list of goods are given below.\*\* [2]  
State whether it is fixed capital or circulating capital.
  - (i) Machines
  - (ii) Raw material
  - (iii) Fuel
  - (iv) Office furniture
- (d) With the help of an example explain the term productive debt. [2]
- (e) Explain any two characteristics of capital. [2]

#### Question 3.

- (a) How is land different from labour ? [2]
- (b) Draw a diagram showing a perfectly elastic demand curve. [2]
- (c) With the help of an example explain the term complementary goods. [2]
- (d) Name any two sources of external debt for India. [2]
- (e) Differentiate between creeping and running inflation. [2]

#### Question 4.

- (a) Mention two ways by which efficiency of labour can be improved. [2]
- (b) What does the term 'nationalisation of banks' mean ?\*\* [2]

\*\* Answer is not given due to change in the present syllabus.

- (c) Why is India considered to be in a virtual debt trap ?\*\* [2]
- (d) Give any two reasons for giving the monopoly right of note issue to the Central Bank. [2]
- (e) Mention any two duties of a consumer. [2]

### SECTION-B (40 Marks)

(Attempt any **four** questions from this Section)

#### Question 5.

- (a) Give any five differences between product and process based division of labour. [5]
- (b) Explain any five rights of the consumers as accepted by the Indian law. [5]

#### Question 6.

- (a) How do the manufacturers and traders exploit the consumers ? [5]
- (b) Explain the role of an entrepreneur in the economic development of the country. [5]

#### Question 7.

- (a) How is a commercial bank different from a Central Bank ? [5]
- (b) What are the merits of an indirect tax ? [5]

#### Question 8.

- (a) With the help of a graph, explain relatively inelastic demand for a commodity. [5]
- (b) Discuss any five advantages of having a bank account. [5]

#### Question 9.

- (a) Explain any five characteristics of tax. [5]
- (b) (i) What is meant by the term demand pull inflation ? [5]
- (ii) Discuss any three causes of demand pull inflation.

#### Question 10.

- (a) (i) Define the term demand. [5]
- (ii) Explain any three factors that affect the demand for a commodity.
- (iii) Why are articles of distinction or the Veblen effect an exception to the law of demand ?
- (b) Discuss any five reasons for growth of public expenditure in India. [5]

## ANSWERS

## SECTION-A

## Answer 1.

- (a) The division of labour is an advantage to the producer in the following ways :

1. **Increase in the size of production :** With the division of labour, the workers become more skilled and efficient. They acquire higher speed in work, which ultimately results in more production, quantitatively as well as qualitatively. This directly enables the producers to earn greater amount of profit.

2. **Reduction in cost of production :** A specialized (expert) worker with the help of machines, produces more quantity of goods in less time and with minimum wastage. This reduces the cost of production thereby resulting in more profit to the producer.

- (b) Refer to ICSE 2020 Answer Q. 3 (a).

- (c) Small farmers suffer during inflation because :

1. As inflation increases, price paid by farmers for various inputs like seeds, fertilizers, insecticides, etc., increase faster than the prices they receive for their products, thereby terms of trade deteriorate as the rate of inflation rises.

2. As small farmers are basically subsistence farmers, major portion of their produce is not marketed but instead, kept for self-consumption and thus not able to receive benefit of price rise.

- (d) Following are the two sources of public revenue :

1. **Tax Sources :** The fund raised through the various taxes is referred as tax revenue. Taxes are compulsory contributions, imposed directly or indirectly by the government on the persons or companies, to meet its general expenses incurred for the common good, without any corresponding benefits to the tax payer.

2. **Non tax Sources :** These include surplus of public enterprises, fees, fine and penalties, grants and gifts.

- (e) Labour can be defined as human effort consisting of both 'mental' and 'physical' exertion undertaken in the expectation of reward.

## Answer 2.

- (a) **Price of the commodity :** Price of the commodity affects its supply. As it is more profitable to sell a commodity at a higher price, therefore, it is natural for the sellers to offer more of a commodity as the price increases.

- (d) Productive debts are those debts which are used

by the government for those projects which yield income. In other words, debt is said to be productive when it is used to finance a project which brings revenue to the government. For example, loans used for the construction of railways, irrigation and power projects and for the establishment of heavy industries such as iron and steel, cement, fertilisers, etc.

- (e) Following are the two characteristics of capital :

1. **Capital is man made :** Capital is man-made factor of production. Its supply is increased or decreased by the efforts of man.

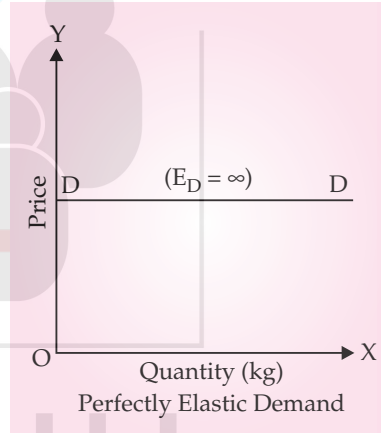
2. **Capital is a passive factor :** It is a passive factor of production as it cannot produce anything by itself. It becomes effective only when it is used by proprietor.

## Answer 3.

- (a) Land is different from labour in the following ways :

1. Land is immobile while labour is mobile.
2. Land is a passive factor of production while labour is an active factor of production.

- (b)



- (c) Complementary goods are those goods which are jointly demanded to satisfy a particular want, like petrol and car, tea and milk etc.

- (d) Following are the two sources of external debt :

1. Loans and advances from foreign government.
2. Loans from IMF, World Bank and International Financial Institutions.

- (e) Refer to ICSE 2020 Answer Q. 2 (b).

## Answer 4.

- (a) Following are two ways by which the efficiency of workers can be improved :

1. The payment of wages should be fair and prompt. The government, through proper

regulation, must ensure that the workers receive fair wages regularly and at the right time.

2. Social security measures should be built up to protect the workers against illness, factory accidents, old age and unemployment etc. like insurance, provident fund.

(d) Two main reasons for giving monopoly right of note issue to the Central Bank are given below :

1. It brings uniformity in note circulation.
2. The Central Bank can exercise better control over the credit creation by commercial banks.

(e) Following are the two duties of a consumer :

1. To know the method to proceed if he is cheated.
2. To procure a proper bill receipts of the goods purchased.

## SECTION-B

**Answer 5.**

(a) Difference between Product based and Process based Division of Labour:

| Basis                    | Product-based Division of Labour                                                                                                   | Process-based Division of Labour                                                                                                                                                 |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Meaning</b>        | When the entire process of production of a single good or service is done individually or collectively by the members of a family. | When the process of production of a commodity is split up into different operations and each worker does one or a few operations, it is called process-based division of labour. |
| <b>2. Specialisation</b> | Here, the worker specialises in the production of a commodity or service.                                                          | Under it, the worker specialises in a particular process of the production of the commodity.                                                                                     |
| <b>3. Nature</b>         | It is simple.                                                                                                                      | It is complex.                                                                                                                                                                   |
| <b>4. Basis</b>          | It is based on labour intensive techniques of production.                                                                          | It is based on capital intensive techniques of production.                                                                                                                       |
| <b>5. Use</b>            | It is generally found in small enterprises.                                                                                        | It is generally found in large enterprise like corporate or quasicorporate enterprises.                                                                                          |

|                   |                                                                                            |                                                                                                                                                                           |
|-------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6. Example</b> | Indian farmers doing all farm activities with the help of his family members collectively. | A modern garment factory where one person takes the measurement, another does the cutting, some sew the clothes, while a few workers button them and other finalize them. |
|-------------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

(b) Refer to ICSE 2020 Answer Q. 7 (b).

**Answer 6.**

(a) Following are the various ways in which a consumer can be exploited by manufacturers and traders :

**1. Underweight and under-measurements :**

The goods sold in the market are sometimes not measured or weighed correctly.

**2. Sub-standard quality :** The goods sold are sometimes of sub-standard quality. Selling of consumables beyond their expiry dates and supply of deficient or defective home appliances are frequent causes of grievances of consumers. For examples, sales of medicines beyond expiry date, and selling spurious drugs (sub-standard drugs).

**3. High prices :** Very often the traders charge a price higher than the prescribed retail price for the product.

**4. Duplicate articles :** In the name of genuine parts or goods, fake or duplicate items are being sold to the consumers.

**5. Adulteration and impurity :** In costly edible items, such as oil, ghee and spices, adulteration is done in order to earn higher profits. Adulteration of food causes heavy losses to the consumers both in terms of health and finance.

(b) Entrepreneurs plays a vital role in economic development of the country. They serve as catalysts in the process of industrialization and economic growth.

Entrepreneurs initiate and sustain the process of economic development in the following ways :

**1. Capital formation :** Entrepreneurs mobilize the idle savings of the public through the issue of industrial securities. Investment of public savings in industry results in productive utilization of national resources. Rate of capital formation increases which is essential for rapid economic growth. Thus, an entrepreneur is the creator of wealth.



**2. Generation of employment :** Entrepreneurs generate employment both directly and indirectly. Directly, self-employment as an entrepreneur offers the best way for independent and honorable life. Indirectly, by setting up large and small scale business units they offer jobs to millions. Thus, entrepreneurship helps to reduce the unemployment problem in the country.

**3. Improvement in living standards :** Entrepreneurs set up industries which remove scarcity of essential commodities and introduce new products. Production of goods on large scale and manufacture of handicrafts, etc., in the small scale sector help to improve the standards of life of a common man. These offer goods at lower costs and increase variety in consumption.

**4. Economic independence :** Entrepreneurship is essential for national self-reliance. Industrialists help to manufacture indigenous substitutes of imported products thereby reducing dependence on foreign countries. Businessmen also export goods and services on a large scale and thereby earn the scarce foreign exchange for the country. Such import substitution and export promotion help to ensure the economic independence of the country.

**5. Growth of infrastructure :** The infrastructure development of any country determines the economic development of a country. Entrepreneurs, by establishing their enterprises in rural and backward areas, influence the government to develop the infrastructure of those areas.

#### Answer 7.

(a) Refer to ICSE 2020 Answer Q. 9. (b).

(b) Following are the merits of Indirect Taxes :

**1. Convenient :** They are mostly levied on commodities and are paid by consumers when they buy them from the market. The amount of tax is included in the price of the commodity and the consumer pays the tax without experiencing its pinch.

**2. Equitable :** Indirect taxes are equitable in the sense that they are paid by all the sections of the community at the time of making purchases of goods in the market, in the form of Goods and Services Tax or Customs Duty.

**3. Productive and elastic :** The income from such taxes goes on increasing with the increase in population and production in the country.

**4. Socially desirable :** Indirect taxes when levied on harmful goods like liquor or tobacco etc., serve a great social purpose because they limit the

consumption of such harmful commodities by the public.

**5. No possibility of evasion :** No person can evade the indirect taxes, because they are included in the prices of goods sold to the consumers.

#### Answer 8.

(a) Refer to ICSE Paper, 2019, Answer Q. 10. (a) (ii).

(b) Following are the various advantages of having a bank account :

**1. Safety of money :** The very first advantage of having a bank account is the security of money. In the old times, when bank services were not widely available, people used to safeguard their money by digging a hole in the land and put their money in that pit or by depositing that money with some Sahukar or moneylender. The biggest problem was the risk of theft of money from pit or dishonesty by Sahukars.

**2. Better use of idle money :** If the money is lying idle with the person, it will not generate any income. He may deposit that money in the bank account and earn some interest on that money.

**3. Liquidity :** The money deposited in the bank account is withdrawable at the will of the account holder. This gives a kind of liquidity to the account holder.

**4. Overdraft facility :** The bank provides overdraft facilities to its current account holder. Whenever he is in need of money exceeding what is available in his bank account, the bank allows the account holder to withdraw more money against some security.

**5. Bill payment :** Banks assist in regular payment of bills to insurance companies, utilities, lenders. This saves the time and stress of account holder. Ex. : Payment of insurance premium.

#### Answer 9.

(a) The main characteristics of tax are as follows :

**1.** A tax is a compulsory payment to be paid by the citizens who are liable to pay it. Hence, refusal to pay tax is a punishable offence.

**2.** The tax is considered to be a willing contribution still it implies the notion of a sacrifice involved on the part of the contributor.

**3.** There is no direct quid-pro-quo between the tax payers and the public authority. In other words, the tax-payer cannot claim reciprocal benefits against the taxes paid.

**4.** A tax is levied to meet public expenditure incurred by the government in the general interest of the nation. It is a payment for direct

and indirect services provided by the government to the community as a whole.

5. A tax is payable regularly and periodically as determined by the taxing authority.

6. A tax is a legal collection.

7. The taxes are of two types, *i.e.*, direct tax and indirect tax.

- (b) (i) Demand-pull inflation refers to a situation in which the price rises when the aggregate demand for goods and services exceeds the aggregate supply of goods and services. Aggregate demand refers to the total demand for goods and services in the economy. When aggregate demand exceeds aggregate supply at full employment level, the gap between these two (*i.e.*, AD and AS) arises. This gap (which is technically termed as inflationary gap) leads to rise in prices. The larger the gap, the greater will be inflation.

(ii) Following are the three causes of demand pull inflation :

1. **Increase in population** : It is a major cause for rise in prices. Increase in population results in increased demand of consumer goods which puts a pressure on existing supply of goods and services, thus resulting in inflation.

2. **Increase in supply of money and change in real income** : There has been a great disequilibrium between increase in supply of money and the increase in real income. In our country, the supply of money has been much greater than the increase in real income (or say output) and this has been the main cause of price rise. When credit expands, it raises the purchasing power of

the borrowers which, in turn, raises aggregate demand relative to supply, thereby leading to inflation.

3. **Increase in disposable income** : When the disposable income of people increases, it raises their demand for goods and services leading to demand-pull inflation.

#### Answer 10.

- (a) (i) Demand refers to the quantity of that commodity or service which a consumer is willing and able to buy at a particular price and at a given time.

(ii) Refer to ICSE 2020 Answer Q. 6 (b).

#### (iii) Articles of distinction or the Veblen effect :

This concept was propounded by Prof. Thorstein Veblen. According to this concept, law of demand does not apply in the case of articles of distinction as consumers measure the desirability of goods entirely by its price and not by its use, *E.g.*: Diamond, jewellery and luxurious cars etc. In this case, demand relates to consumers who use them as status symbol. As their prices go up and it becomes costlier, rich people think it is more prestigious to have them. So they purchase more. On the other hand, when their prices fall sharply, they buy less, as they are no more prestigious goods. It is an exception to the law of demand because it breaches the normal tendency of inverse relationship between price and quantity demanded. Rather, it showcases positive relationship between the price and quantity demanded of prestigious goods.

- (b) Refer to ICSE 2020 Answer Q. 8 (b).

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GURUKUL

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) How does land differ from other factors of production with respect to its supply ? [2]
- (b) What is meant by cost-push inflation ? [2]
- (c) With the help of a diagram, define perfectly elastic demand. [2]
- (d) Identify the type of division of labour in an automobile industry. Explain. [2]
- (e) With suitable examples differentiate between complementary goods and substitute goods. [2]

#### Question 2.

- (a) Why is supply directly proportional to price ? [2]
- (b) Explain briefly any one determinant of an exceptional demand curve. [2]
- (c) What is meant by unproductive public debt ? [2]
- (d) Mention one contingent function of money. [2]
- (e) Explain briefly the impact of cost of production on elasticity of supply. [2]

#### Question 3.

- (a) How does proportional tax differ from progressive tax ? [2]
- (b) Capital depreciates. Explain. [2]
- (c) What is meant by double coincidence of wants ? How does money overcome this problem ? [2]
- (d) Expand COPRA. What is its objective ? [2]
- (e) Indirect taxes sometimes help in social reforms. Explain. [2]

#### Question 4.

- (a) Distinguish between fixed capital and floating capital. [2]
- (b) How does money act as a standard of deferred payment ? [2]
- (c) Define public expenditure. [2]
- (d) What is meant by consumer awareness ? [2]
- (e) Mention one difference between demand deposits and time deposits. [2]

### SECTION-B (40 Marks)

(Attempt any **four** questions from this Section)

#### Question 5.

- (a) Define labour. Suggest three methods to improve the efficiency of Indian labour. [5]

- (b) What is meant by capital formation ? Explain three causes of low capital formation in India. [5]

#### Question 6.

- (a) Mention an important difference between a Commercial Bank and the Central Bank. Explain briefly three methods adopted by Commercial Banks to advance credit to borrowers. [5]
- (b) Define the term 'Entrepreneur'. Discuss three ways by which an entrepreneur promotes economic growth. [5]

#### Question 7.

- (a) With the help of a suitable diagram explain the meaning of rightward shift in the demand curve. Explain briefly any two of its determinants. [5]
- (b) Name the institution which enjoys the monopoly of note issue. Explain the following functions of this institution : [5]
  - (i) Bankers Bank
  - (ii) Banker to the Government

#### Question 8.

- (a) State the law of supply. Explain any three factors other than price which determine supply in the market. [5]
- (b) Explain the meaning of the following terms : [5]
  - (i) Impact (ii) Shifting (iii) Incidence
 To which tax are these terms relevant ? Explain any one merit and two demerits of this tax.

#### Question 9.

- (a) Mention one way by which consumers are exploited in the market. [5]
 

Explain clearly three reasons as to why consumers are exploited.
- (b) Public expenditure in India has increased over the years. Explain four principle reasons for its increase. [5]

#### Question 10.

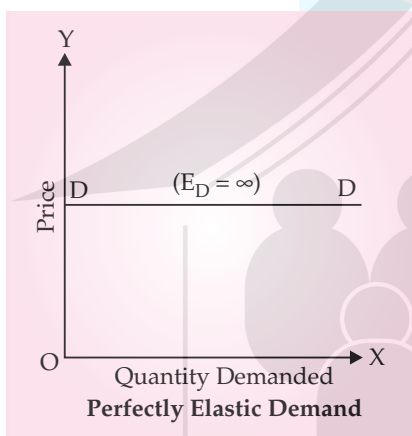
- (a) (i) What is meant by the term 'Inflation' ? What is its impact on debtors ? [5]
  - (ii) Explain the following :
    - (1) Creeping inflation
    - (2) Walking inflation
    - (3) Hyper inflation
- (b) With the help of a suitable example, explain the meaning of geographical or territorial division of labour. Discuss any three advantages of division of labour. [5]

## ANSWERS

## SECTION-A

## Answer 1.

- (a) The supply of land is inelastic (fixed) when compared with that of other factors of production. The quantity of land cannot be increased further in response to its increased demand.
- (b) Cost-push inflation refers to inflationary rise in prices due to rise in the cost of production. The main causes of cost-push inflation is rise in wages, increase in the prices of basic material and increase in tax rate.
- (c) When small change in price causes a greater variation in quantity demanded of a commodity, it is known as perfectly elastic demand ( $E_D = \infty$ ). But in reality, such demand rarely occurs, it is just an extreme condition.



In the diagram, the price has been given on Y axis and quantity demanded has been mentioned on X axis. We can see that at a given price, the demand curve DD is a horizontal line parallel to X axis. This shows that with the slight change in price, the quantity demanded can increase or decrease to any extent. This is called perfectly elastic demand curve.

- (d) The type of division of labour in automobile sector is known as complex division of labour or process based division of labour. In this system, the work is divided into different processes and sub-processes, in such a way that only a part or a component of a commodity is produced at each step. Since the part produced in one process is not directly passed on to the next process in a complete form, this system is known as incomplete process of complex division of labour. For example, the

different parts of an automobile are incomplete unless and until they are assembled together to produce the complete car or bike.

- (e) Complementary goods are the goods which are demanded together like pen and ink, chair and table, car and petrol, etc., while substitute goods are those goods which can be used in the place of each other like tea and coffee, bike and scooter, tablet and mobile, etc.

## Answer 2.

- (a) The law of supply establishes the positive (direct) relationship between the price of the commodity and its quantity supplied, other things being constant. The reason behind this positive relationship is the rising profit with the rising price. Hence, due to rise in profit, the suppliers are ready to supply more quantity even at higher price of the commodity.

- (b) One of the determinant of exceptional demand curve is :

Loss of faith in Quality: When people have no faith in the quality of the product, the law will not apply. Any fall in the price of that commodity will be insufficient to bring about a rise in its demand.

- (c) The unproductive public debt is the debt which is raised by the government to meet unproductive expenditure like meeting war expenses or paying interest on previously taken loan or paying salary dues, etc., which do not generate any income and thus, are considered as dead weight upon the government.

- (d) **Credit system as one of the contingent function of money :** Money has facilitated the application of credit system in the economy. In modern economy, various commercial and business transactions takes place on credit. It is the money which provides the basis of entire credit system. Without existence of money, important credit instruments like cheques, bills of exchange, etc., cannot be used.

- (e) Increase in cost of production will have an adverse impact on supply. If the increasing returns operate with the increase in production cost than the supply of goods will be elastic and in the case of decreasing returns and increasing cost of production, the supply of the commodity will be inelastic.



## Answer 3.

| S. No. | Proportional Tax                                                                | Progressive Tax                                                          |
|--------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 1.     | Rate of Tax remains constant irrespective of change in income of the tax payer. | Rate of Tax increases with the increase in income slab of an individual. |
| 2.     | This system does not lead to equality of sacrifice.                             | This system leads to equality of sacrifice.                              |

(b) With the continuous use of capital or with the passage of time, the capital depreciates. In other words, with the regular use or the passage of time, normal wear and tear takes place in the capital goods and their value decreases. This is known as depreciation.

(c) Double coincidence of wants means that both the parties have to agree to sell and buy each other's commodity i.e., what a person desires to sell is exactly what the other person wishes to buy. The barter form of exchange can take place only when the two parties need each others goods in the form of exchange. For example, if a farmer produces rice and a weaver produces cloth, then the exchange can take place only and only when the weaver wants rice and farmer wants cloth.

As money is normally accepted as a common medium through which all the sales and purchases takes place. It has eliminated the difficulties of double coincidence of wants involved in the barter system.

(d) COPRA refers to the Consumer Protection Act, 1986. This act was passed by Indian Parliament in 1986. The objective of COPRA is to protect the consumers' interests and provide them a speedy redressal forum for their grievances. So that they can get their rights as consumer secured.

(e) Indirect tax helps to bring social reform when imposed on socially undesirable goods like cigarette, wine or opium, etc., and it may serve a great social purpose because it can limit the consumption of such harmful commodities by the public due to high prices.

## Answer 4.

| S. No. | Fixed Capital                                                                    | Floating Capital                                                                      |
|--------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1.     | Capital invested in procuring fixed assets for business is called fixed capital. | Capital invested in procuring current assets for business is called floating capital. |

|    |                                                                                                         |                                                                                                  |
|----|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 2. | Utility of capital goods does not get exhausted in a single use.<br>E.g., Machinery Plants and Factory. | It includes all such goods which can be put to alternate uses.<br>E.g., Electricity money, fuel. |
|----|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|

(b) Money acts as a standard of deferred payment because value of money is stable and can be used in the settlement of debts. It means payment to be made in future can be assessed and expressed in terms of money. In modern economy, many transactions involve future payments in terms of money. It has become possible because money is durable and has a general acceptability and it can be expressed in definite and standardized units in future as well. For example, A lends ₹ 1,000 to B for a year, he knows it very well that what he will receive as interest and principle amount.

(c) Public expenditure is that expenditure incurred by public authorities (i.e., Central, State and Local government) to promote economic and social welfare of the people. For example, expenditure on maintaining armed forces, judicial system, administration, providing education and health facilities.

(d) Refer to ICSE Paper, 2020, Answer Q. 3 (a)

(e) One of the differences between a demand deposit and a time deposit is that the demand deposit can be withdrawn by cheque but the time deposit cannot be withdrawn until expiry period.

## SECTION-B

## Answer 5.

(a) In the words of Prof. A Marshall, labour is defined as

"Any exertion of mind or body undertaken partly or wholly with a view to secure an income, other than the pleasure derived directly from the work, is called labour."

Thus, labour includes only those efforts of a human being (physical or mental), basically made to earn a living. Labour is a basic factor of production without which nothing can be produced.

## Suggestions for improving the efficiency of Indian labour

Following are the three suggestions, which may help in improving the efficiency of Indian labour:

1. The workers must be paid fair and timely wages. This will help the workers to raise their standard and plan their consumption of living and investment well in advance for the future.

2. A part of profit earned by the concern must be paid to workers as an incentive. This will integrate the workers interest with the growth of the organisation and motivate the workers to contribute their efforts with their full potential.

3. Social security facilities should be provided to protect the workers against illness, factory accidents, old age problems and unemployment in form of insurance, medical aid, etc.

(b) Capital formation is a term used to describe the net capital accumulation during an accounting period for a particular country and additions to capital stock, such as equipment and tools, transportation assets and electricity, etc.

Capital formation does not mean increase in money capital, but it actually refers to increase in physical capital or real assets.

Three causes of low rate of capital formation in India are :

1. **Low saving ability** : Low per capita income leads to small savings which lead to lower rate of capital formation.

2. **Habit of hoarding** : Most people have small saving capacity and are more in the habit of hoarding which is of no use for capital formation.

3. **Inflation** : Due to inflationary trend people have low saving capacity and contribute less to capital formation.

#### Answer 6.

(a) 1. An important difference between Commercial Bank and Central Bank is that, Central Bank enjoys monopoly over note issue and Commercial Banks do not.

2. A commercial bank advance credit to its borrowers in the following three ways :

(1) **Cash credit** : In cash credit, the bank advances a 'cash loan' upto a specified limit to the customer, against a bond or other security. A borrower is required to open a current account and bank allows the borrower to withdraw upto the full amount of the loan. The interest is charged only on the amount actually utilized by the borrower and not on the loan sanctioned.

(2) **Overdraft** : The overdraft facility is allowed to the depositor maintaining a current account with the bank. According to this facility, a borrower is allowed to withdraw more amount than what is there in his/her current account. The excess amount so withdrawn has to be repaid to the bank with interest. However, the overdraft facility is given only against the security of some assets or on personal security of the customer.

(3) **Discounting bills of exchange** : The banks provide financial help to the merchants and exporters, who are the customers of that bank, by way of discounting their bills of exchange. In such facility, the bank pays the amount of bill presented by the customer, after deducting the usual bank discount. This way, the customer gets the amount of the bill before the date of its maturity. As such the bank assists its customers to a great extent by accepting their bills and providing them with liquid assets i.e. money. Usually a bill matures after 90 days or so and then the bank presents it to the acceptor and receives full amount of the bill.

(b) "An entrepreneur is someone who utilises land and labour, invests in capital and resources and aims at producing goods or delivering services.

In words of J. B. Say : "An entrepreneur is an economic agent who unites all means of production i.e., land of one, the labour of another and the capital of yet another and thus produces a product. By selling the product in the market he pays rent of land, wages to labour, interest on capital and what remains is his profit. He utilizes economic resources for higher productivity and greater yield."

#### Role of Entrepreneur in Economic Growth

1. **Mobilize dormant resources** : An entrepreneur is the one who mobilizes dormant or the passive resources of the economy and employ them in a purposeful activity. Without an entrepreneur, these resources will not be able to contribute in any kind of production.

2. **Performs the role of an administrator** : The modern economic development is taking place due to the emergence of dynamic, intelligent and enterprising entrepreneurs. An entrepreneur shoulders the responsibility right from planning the whole business upto expanding it i.e., from foundation to full development. For this, he assumes the responsibility for the quantity, quality and nature of the product. He arranges for the purchase of raw materials and sale of the finished product. Also, he/she has to administer discipline, control and remuneration to the labour, working under him/her as per his direction.

3. **Proper marketing of the finished products** : An entrepreneur makes arrangements for the marketing and sale of the finished product. This involves the employment of sales personnel, arrangement for publicity and advertisement of products, the execution of orders and dispatch of goods, etc. The sale of the products make goods

available to the consumers and fulfills their needs and bring profits to the business.

### Answer 7.

- (a) Rightward shift in demand curve means increase in demand, due to factors other than the price of a commodity.

**Rightward Shift in Demand curve can be in two situations :**

**1. If any other factor except price increase :** If factors like number of consumers, level of income, etc., increase (price remaining constant), it will result in increase in demand.

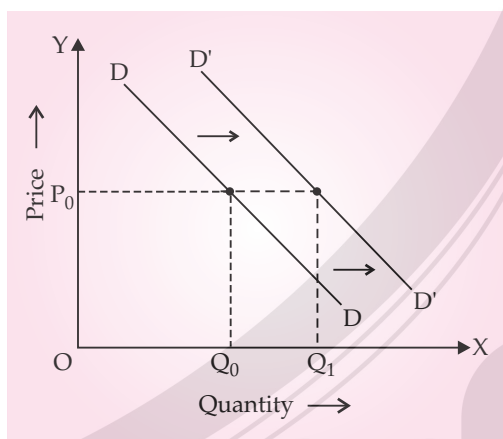


Fig. (a)

**Increase in demand is illustrated by Fig. (a)**

At price  $OP_0$ , consumer demand  $OQ_0$  quantity, with increase in level of income, consumers will demand more quantity at the same price, thereby leading to formation of new demand curve  $D'D'$ . This result in rightward shift in demand curve.

**2. In case of highly essential commodities :** In case of highly essential commodities like necessity items, medicinal products, etc. the quantity demanded of a commodity remains the same irrespective of increase in price of product.

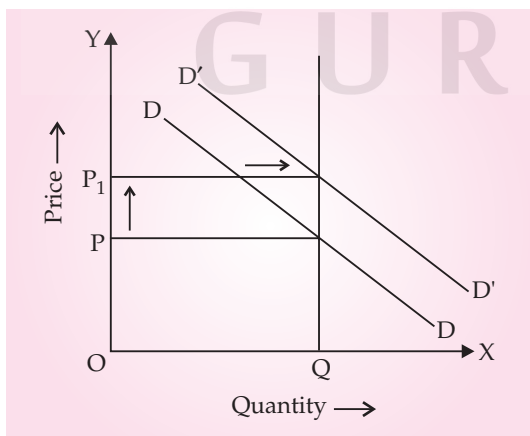


Fig. (b)

Fig. (b) also illustrates increase in Demand

At the price  $OP$ , Quantity demanded is  $OQ$  resulting in  $DD$  demand curve. But, even at  $OP_1$ , the quantity demanded is same  $OQ$ , since it is a necessity item. This leads to rightward shift in demand curve from  $DD$  to  $D'D'$

Two determinants of demand are :

**1. Income of the consumer :** A key determinant of demand is the level of income of a consumer, i.e., the higher the level of income, the higher the demand for a given commodity except inferior goods. Consumers' income and demand are generally positively related.

**2. Expectation of future prices :** The current demand of a product also depends on its expected price in future. If future price is expected to rise, its present demand will immediately increase to avoid pinch of future price rise.

- (b) The institution which has the monopoly of issuing the currency notes is the 'Central Bank' of the country. It is called 'Central' because it is the apex body of the entire banking system of the country. It has certain special rights, powers and privileges, so that it can regulate the activities of other commercial banks and can exercise control over the monetary and credit policies of the nation.

Various economists have defined a Central Bank in the following words:

"Central Bank is that bank which constitutes the apex of the monetary and banking structure of the country." —De Kock

"Central Bank is an institution charged with the responsibility of managing the expansion and contraction of the volume of money in the interest of general public welfare." —R. P. Kent

**Functions of Central Bank :**

**(i) Banker's bank :** The 'Central Bank' is the bank for all the commercial banks in the country. In other words, the relation of Central Bank with other banks of the country is similar to that of a commercial bank with its customers. As a matter of legal obligation, the commercial banks keep certain portion of their deposits with the 'Central Bank' as cash reserves. As a banker's bank, the Central Bank also allows the facility of short-term loans and discounting of the bills to the commercial banks. The 'Central Bank', by notification also advises the commercial banks of the country in matters relating to their business, like fixation of rate of interests on deposits and loans, etc.



**(ii) Banker to the government :** As a banker to the government, the 'Central Bank' makes and receives payments on behalf of the government whenever it becomes necessary. It also floats public debts and manages it for a shorter or longer period as the case may be, for the government. As a fiscal agent of the government, it receives loans, taxes and other payments from the public and manages the public debt on behalf of the government.

#### Answer 8.

- (a) The law of supply states that other things being constant, the quantity supplied of a commodity increases with the increase in its price and falls with the fall in its price. So there is a positive relationship between the price of a commodity and its supply.

The factors other than price which affect the supply of a commodity are :

**1. Prices of related commodities :** Prices of related goods generally affect the relative profitability of a commodity and thus, exercise their influence on its supply. Let us say, that the prices of nylon, rayon and silk clothes have risen, while the prices of cotton clothes remain same. Obviously in the new situation, the relative profitability of cotton clothes has declined and as a result of it, their supply will be reduced while the supply of nylon, rayon and silk clothes will increase.

**2. Prices of factors of production :** When prices of either of the inputs (factors) of production increase, the cost of product also increases which discourages the producers or suppliers to increase the supply. On the other hand, when there is a decrease in the prices of inputs, the final product becomes cheaper and margin of profit increases, which ultimately results in an increased supply of the commodity to the market.

**3. Natural conditions :** Natural conditions play a very important role in the supply of products. Rain, frost, floods, dust-storms, pests, earthquakes, etc., adversely affects the agricultural production and thus, affects, the supply of agricultural goods.

- (b) These terms are associated with indirect tax. The meaning of the terms are as follows :

**(i) Impact :** Impact refers to, "on whom the tax is levied in the first instance." It means who is primarily responsible to pay the tax. In indirect tax, the impact of the tax is on seller who is primarily responsible to pay the imposed tax.

**(ii) Shifting :** It refers to transfer of the burden of the tax amount. In indirect tax, though it is seller who initially pays the tax but he adds (transfers) this tax in the cost of the product and collects it from the buyer of the product.

**(iii) Incidence :** Incidence refers to "who bears the final burden of the tax." So in the case of indirect tax, it is the ultimate consumer who bears the ultimate burden of the tax by paying it through the price of a product.

#### Merits of Indirect Taxes are :

**1. Convenient :** They are mostly levied on commodities and are paid by consumers when they buy them in the market. The amount of the tax is included in the price of the commodity and the consumer pays the tax without experiencing its pinch.

#### Demerits of Indirect Taxes

**1. Regressive :** Indirect taxes are not equitable as they are regressive in nature. It affects the poor more than the rich. For example, a commodity tax imposed on foodstuffs will affect a poor family to a much greater extent than a rich family.

**2. Uncertain :** As soon as the tax is levied on a commodity, its price rises in the market and, consequently, its demand declines. It cannot be said with certainty as to which extent the demand of the commodity has declined consequent upon the imposition of the tax. Hence, there is always uncertainty about the income occurring from the indirect taxes.

#### Answer 9.

- (a) One way by which consumers are exploited is **Adulteration and impurity** : This is the very common way of exploitation of the consumers. Such adulteration and impurity takes place mainly in the edible items like oils, milk, spices, grains etc., and fossil fuels. Adulterated food are impure, unsafe, or unwholesome food. Incidents of food contamination have occurred because of poor harvesting or storage of grain, use of banned veterinary products, industrial discharges, human error and deliberate adulteration and fraud.

Following are the various reasons why the consumers get exploited :

**1. Monopoly or cartels :** When there is only one seller in the market, or very few sellers acting as cartel, they may resort to charging higher price or providing very limited quantity, creating artificial scarcity.



**2. Limited information :** A consumer may not have complete information regarding the content, quality, price or expiry of the product.

**3. Unorganized consumers :** The consumers get exploited because they are not organized and most of the time they fail to present a collective voice against exploitation.

- (b) Now-a-days, the government plays a vital role in promotion of economic development of a country, particularly for an under-developed country like India which lack even is providing the basic necessities of life, such as, food, cloth, housing, health, education, etc. India suffers from a number of problems like high incidence of poverty, chronic problem of unemployment and widespread inequality in the distribution of income and wealth. Following are the main reasons :

**1. Development of economic infrastructure :** Indian government is spending large amount in developing economic infrastructure. It includes the development of transport systems (road, air and sea), raw-material, irrigation works, gas, power and electricity, bridges, communication network, technical-know-how, provision of adequate water, housing, etc. The absence of economic infrastructure can retard economic development.

**2. Improvement in the standard of living :** The Indian government is committed towards providing better food, clothing, housing, etc., to raise the living standard of its people. The living standard of the people will be better only when the per-capita income increases. For this, various measures and policies have been adopted for the development of different economic sectors, like agriculture, industry, trade, transport, commerce and infrastructure.

**3. Employment generation :** Unemployment is a kind of wastage of manpower. Moreover, under-employment or disguised unemployment has similar evil effects on the society. If the unemployed workers are put to work, they will produce goods or services that will benefit the worker himself as well as the nation. The Indian government has framed various policies to raise employment like MGNREGA and MUDRA.

**4. Social security :** A person having low income develops a feeling of financial and social insecurity. Moreover, if any mishappening like sickness, accident or unemployment occurs, he cannot earn during this situation

and his sufferings will increase. To avoid such situations, Government of India has developed social security measures like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Pradhan Mantri Jeevan Jyoti Bima Yojna, Pradhan Mantri Suraksha Bima Yojna and Rashtriya Swasthya Bima Yojna, etc., at the national level.

#### Answer 10.

- (a) (i) Inflation is the state of disequilibrium in which the quantity of money is in excess of the availability of goods and services in an economy which results in rising prices. Inflation, in simple words, indicates rising prices which cause a decline in the purchasing power of money.

Various economists have defined inflation in the following words :

"Inflation is a state in which the value of money is falling, i.e., prices are rising."

—Prof. Crowther

"Inflation exists when money income is expanding more, than in proportion to income earning activities."

—Prof. A. C. Pigou

**Impact on debtors :** During inflation, debtors are the gainers when they pay back their debt. It is because the value of money was high when they borrowed, but it came down when they repaid their debts. So they are the net gainers.

- (ii) The various types of inflation are explained below :

**(1) Creeping inflation :** When the rise in prices is very slow like that of a snail or creeper, it is called creeping inflation. In terms of speed, prices rise about 2 percent annually which is regarded safe and essential for economic growth because it keeps the economy away from stagnation. However, some economist say creeping inflation is dangerous for the economy as in the beginning creeping inflation may look simple but as time passes, it may assume alarming proportions.

**(2) Walking or trotting inflation :** When the rate of rise in inflation is of international standard of 3 to 8 percent per annum, it is called walking or trotting inflation. Walking inflation is a warning signal for the government to control it before it turns into running inflation.

**(3) Hyper Inflation :** Hyper Inflation is a situation where prices rise very fast at double or triple digit rates from more than 20 to 100 per cent per annum or more. Such a situation brings total collapse of

the monetary system because of the continuous fall in the purchasing power of money. Under hyper inflation, the prices rise every moment.

- (b) The territorial or geographical division of labour refers to a situation in which the people of a particular region become specialized in certain areas of their work because of the fact that certain areas or regions have some special geographical endowments, *e.g.*, availability of power resources, sufficient raw materials, suitable climate, etc., which helps in the establishment and development of a particular type of industry there. These peculiar circumstances result in geographical or territorial division of labour.

The examples are development of cotton textile mills in Mumbai (Bombay) and Ahmedabad, on account of abundant availability of raw cotton and the favourable climatic conditions in Maharashtra and Gujarat. The concentration of jute industry in

Hooghly region of West Bengal and Iron and Steel industry in Jamshedpur and Bhilai are some of the other examples.

Following are the advantages of division of labour :

**1. Increase in production :** With the division (specialization) of labour, the workers become more skilled and efficient. They acquire higher speed in work which ultimately results in more production, quantitatively as well as qualitatively. This directly enables the producers to earn greater amount of profit.

**2. Reduction in cost of production :** The specialized (expert) worker with the help of machines, produces more quantity of goods in less time and with minimum wastage. This reduces the cost of production, thereby resulting in more profit to producer.

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## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

- (a) Define Direct Tax. Give two examples. [2]
- (b) State any two differences between an entrepreneur and other factors of production. [2]
- (c) How does money help in maximizing utility? [2]
- (d) Explain two rights of a consumer. [2]
- (e) Mention one way by which the Government can reduce the inequalities of income and wealth in an economy. [2]

#### Question 2.

- (a) What is meant by contraction in demand? [2]
- (b) Mention two ways by which producers benefit from division of labour. [2]
- (c) Mention the degree of Price elasticity of demand for the following goods : [2]
  - (i) cosmetics (ii) medicine
  - (iii) school uniform (iv) air conditioners
- (d) Explain briefly two factors affecting the productivity of land. [2]
- (e) A special virtue of Indirect Taxes is that, they sometimes help in Social reforms. Explain. [2]

#### Question 3.

- (a) Define Bank rate. [2]
- (b) Mention two causes of increase in public expenditure in recent times. [2]
- (c) Complete the following demand schedule : [2]

| Price (₹) | Qty. of Mangoes demanded (kgs) |
|-----------|--------------------------------|
| 350.00    | 2                              |
| 300.00    |                                |
| 250.00    |                                |
| 200.00    |                                |
| 150.00    |                                |
| 100.00    |                                |

- (d) Draw a perfectly inelastic supply curve. [2]
- (e) Explain one cause for low capital formation in India. [2]

#### Question 4.

- (a) What is the impact of the level of technology on supply? [2]

- (b) Define creeping inflation. Why is it considered good for an economy? [2]
- (c) Mention two differences between fixed deposits and demand deposits. [2]
- (d) What is meant by a Degressive Tax system? [2]
- (e) Define simple division of labour. [2]

### SECTION-B (40 Marks)

(Attempt any **four** questions from this Section)

#### Question 5.

- (a) Define demand. Explain clearly two factors which determine demand. [5]
- (b) Explain four important characteristics of labour as a factor of production. [5]

#### Question 6.

- (a) Define Public expenditure. Explain two ways by which it promotes economic development. [5]
- (b) What is meant by efficiency of labour? Explain three causes of low efficiency of labour in India. [5]

#### Question 7.

- (a) With the help of a diagram explain the meaning of Increase in supply and Decrease in supply. [5]
- (b) What is meant by consumer awareness? Explain briefly four ways by which consumers are exploited. [5]

#### Question 8.

- (a) Define money. Explain the primary functions of money. [5]
- (b) Mention five differences between a Direct Tax and an Indirect Tax. [5]

#### Question 9.

- (a) Explain briefly the five agency functions of a Commercial Bank. [5]
- (b) Define Capital. Differentiate the following with examples : [5]
  - (i) Real Capital and Debt Capital
  - (ii) Money Capital and Sunk Capital

#### Question 10.

- (a) What is meant by Price elasticity of supply? Explain three factors which determine elasticity of supply. [5]
- (b) Explain the following : [5]
  - (i) Internal and External debt
  - (ii) Productive and Unproductive debt

## ANSWERS

## SECTION-A

## Answer 1.

- (a) Direct taxes refer to those taxes which are directly paid by those on whom they are legally imposed. Such taxes are not transferable.

**Example :** Income tax, Wealth tax.

- (b) 1. An entrepreneur has to bear all the risks of business while other factors of production like land, labour and capital have nothing to do with the risks involved in the business.

2. An entrepreneur has to decide the reward that each factor of production should get, while other factors of production have nothing to do with that.

- (c) A rational consumer wants to maximise his utility while purchasing various goods and services. He will be able to maximise his total utility if the ratio of the marginal utilities of various commodities is equal to their prices. For equalising the marginal utilities, money plays an important role because prices of all commodities are expressed in terms of money.

- (d) **Rights of a consumer are :**

1. **Right to safety :** The consumers have the right to be protected against marketing of goods and services which are hazardous to life and property.

2. **Right to be informed :** All the consumers have the right to be informed about the particulars of goods and services that they purchase. They have the right to be informed about the quality, quantity, potency, purity, standard and price of goods.

- (e) Government uses taxes for reducing inequalities of income and wealth in an economy. Inequality of income can further be reduced by imposing heavy taxation on goods purchased by the rich people (*i.e.*, luxury goods) and by giving tax concessions on essential goods which are purchased by the poor.

## Answer 2.

- (a) Other things being the same, when quantity demanded of a commodity falls as a result of rise in its price, it is called contraction of demand.

- (b) Refer to ICSE Paper, 2018, Answer 1. (a)

- (c) Degree of Price Elasticity of Demand for :

- (i) Cosmetics — Perfectly Elastic  
(ii) Medicines — Perfectly Inelastic Demand ( $E_d = 0$ )  
(iii) School uniform — Perfectly Inelastic Demand  
(iv) Air conditioners — Perfectly Elastic

- (d) **Factors affecting productivity of land are :**

1. **Natural factors :** Productivity of land is largely determined by its natural qualities such as fertility, slope of land, climate, chemicals and biological properties of the soil.

2. **Availability of capital :** Land productivity can be increased with the help of machines, chemical manures, improved seeds implements and scientific method. Intensive cultivation gives a higher productivity on a small piece of land.

- (e) Heavy indirect taxation on commodities like wine, opium etc. serves a great social purpose. It may check their consumption and save the society from their harmful effects.

## Answer 3.

- (a) "The bank rate is the rate at which a Central Bank lends money to member commercial banks against approved securities or eligible bills of exchange." It is a traditional method of credit control used by the Central Bank.

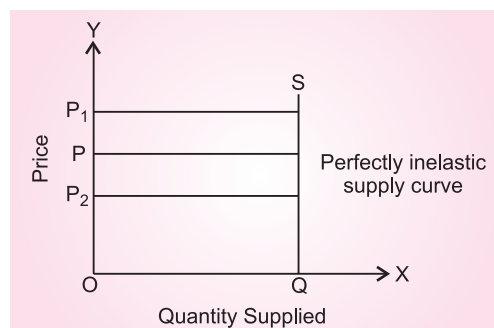
- (b) **Causes of increase in public expenditure :**

1. **Increase in defence expenditure :** International political situation is uncertain and insecure. People are always afraid of a war. Hence, every nation must be strong enough to protect itself and this has led to the increase in public expenditure.

2. **Population growth :** With the increase in population the responsibilities of the State also increases which consequently leads to the increase in public expenditure.

| Price (₹) | Qty. of Mangoes demanded (kgs) |
|-----------|--------------------------------|
| 350.00    | 2                              |
| 300.00    | 4                              |
| 250.00    | 6                              |
| 200.00    | 8                              |
| 150.00    | 10                             |
| 100.00    | 12                             |

- (d)





- (e) In India, the level of savings is low because of low level of income and the main reason behind low level of income is low productivity levels in the agricultural and industrial sectors of the economy.

**Answer 4.**

- (a) If the producers make use of improved and advanced technology in their process of production, the costs of production will come down. Total supply, thus will increase. But against it, supply of goods using old and inferior technologies of production will fall.
- (b) When the rise in price is very slow like that of a snail or creeper. It is called creeping inflation. In creeping inflation, prices rise about 2 per cent annually.

It is considered good for an economy because it keeps the economy away from stagnation and is essential for economic growth.

| S. No. | Fixed Deposits                                                                   | Demand Deposits                                                   |
|--------|----------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1.     | These deposits carry highest rate of interest.                                   | No interest is paid on these deposits.                            |
| 2.     | These deposits can be withdrawn only after the expiry of a certain fixed period. | Demand deposits can be withdrawn by their depositors at any time. |

- (d) Refer to ICSE Paper, 2019, Answer 2. (e)
- (e) When a person specialises in the production of a particular commodity or service, it is called product based or simple division of labour. Farmers, carpenters, black smiths, cobblers are the examples of simple division of labour.

**SECTION-B****Answer 5.**

- (a) Demand means the quantity of a commodity or services that a consumer is willing to buy at a given price and at a given time. For example, if we say that a household purchases 5 kg. of sugar per day @ ₹ 20 per kg. Then 5 kg. of sugar will be called the demand.

**Factors affecting demand are :**

**1. Price of the commodity :** Ordinarily, quantity demanded for a commodity increases when its price falls and decreases when price rises. So there is an inverse relationship between demand and its price.

**2. Consumer's tastes and preferences :** Demand depends upon a number of factors such as social customs, habits, fashion, age, family background, etc. Change in any of these factors leads to change demand for the commodity.

- (b) **Characteristics of labour as a factor of production are as follows :**

**1. Labour is perishable :** If a worker does not work on a particular day, his labour for that day is wasted. Labour is thus, perishable. Labour can not be stored.

**2. Labour is an active factor of production :** Land and capital are passive factors but labour is an active factor of production. Without labour, other factors of production, viz, land and capital, cannot produce anything.

**3. Labour is mobile :** Labour alone is a factor which is mobile. It can move from one place to another and also from one occupation to another.

**4. Labourer sells his labour, not himself :** The labourer does not sell himself, he sells his labour only. A labourer may or may not agree to do work. He remains quite independent while doing his task.

**Answer 6.**

- (a) Public expenditure is that expenditure incurred by the public authorities (i.e., Central, State and Local Government) to satisfy those common wants which the people in their individual capacity are unable to satisfy efficiently. For example, expenditure incurred by the government on education, health, public works etc.

Public expenditure can promote economic development in the following ways :

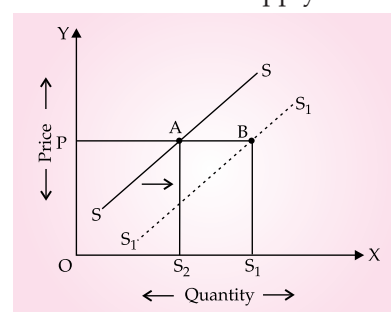
- Public expenditure on economic and social infrastructure provides larger employment opportunities and raises the productive capacity of the economy.
- Public expenditures tends to lessen inequality of income and wealth through its welfare measures like free education, free medical facilities and social security schemes like old-age pension, unemployment allowance etc.

- (b) Refer to ICSE 2020 Answer Q. 5 (a) (i) (ii).

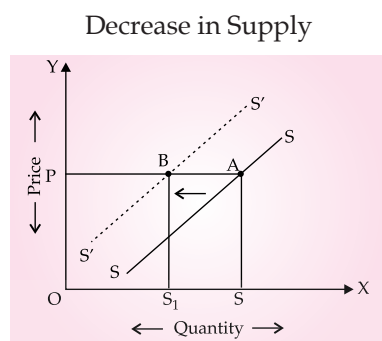
**Answer 7.**

- (a) **Increase in supply :** It refers to a situation when there is more supply at the same price, due to change in other factors.

Increase in supply



**Decrease in supply :** Decrease in supply reflects the situation in which the producer supplies less quantity at the same price. (b)



(b) Consumer's consciousness towards his/her rights and duties is known as consumer awareness.

Some common ways by which consumers are exploited by manufacturers and traders are as follows :

- 1. Underweight and undermeasurement :** The goods being sold in the market are sometimes not measured or weighed correctly.
- 2. Sub-standard quality :** The goods sold are sometimes of sub-standard quality. Selling of medicines beyond their expiry dates and supply of defective home appliances are generally the regular grievances of consumers.
- 3. Duplicate articles :** In the name of genuine parts or goods, fake or duplicate items are being sold to the consumers.
- 4. High prices :** Very often the traders charge a price higher than the prescribed retail price.

**Answer 8.**

(a) According to Crowther, "Anything is money, which is generally acceptable as a means of exchange and at the same time acts as a measure and store of value."

**These are the primary functions of money :**

- 1. Medium of exchange :** Money is normally accepted as a medium through which all the sales and purchases take place. As a common medium of exchange, money has eliminated the difficulties of barter system such as double co-incidence of wants.
- 2. Measure of value :** Money acts as a common measure of value . It serves as a unit of measurement in terms of which the values of all goods and services are measured and expressed.

|    | Direct Taxes                                                                                                               | Indirect Taxes                                                                                                                              |
|----|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Taxes imposed on income or properties are direct taxes.                                                                    | Taxes imposed on commodities are indirect taxes.                                                                                            |
| 2. | They are directly paid to the government by the person on whom it is imposed.                                              | They are paid to the government by one person but their burden is borne by another person.                                                  |
| 3. | They can not be shifted on others.                                                                                         | They can be shifted on to others.                                                                                                           |
| 4. | These taxes are levied according to the ability of the taxpayer.<br><b>Examples :</b> Income Tax, Wealth tax, export duty. | These are the taxes in which tax paying ability of the taxpayer is assessed indirectly.<br><b>Examples :</b> GST, Excise duty, Custom duty. |

**Answer 9.**

(a) Banks perform certain agency functions for and on behalf of their customers :

- 1. Collection and making payments for credit instruments :** Banks collect or make payments on behalf of their customers such as insurance premium, pensions, dividends, interests etc.
- 2. Purchase and sale of securities :** Banks undertake purchase and sale of various securities like shares stock, bonds, debentures etc. on behalf of their customers.
- 3. Trustee and Executor :** Banks preserve the wills of their customers and execute them after their death.
- 4. Transfer of funds :** Banks help their customers in transferring funds from one place to another through cheques, drafts etc.

(b) Capital refers to cash and those reproducible or man-made durable goods that are used as inputs to produce other goods and services in the future. Example : tools and instruments, plants and equipments.

(i)

| Real Capital                                                                                     | Debt Capital                                                                                                                 |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| It refers to those assets which help in the production process such as machines, buildings, etc. | It is the capital invested in shares, stock, debentures, government securities, etc., which yield income to their investors. |

(ii)

| Money Capital                                                                 | Sunk Capital                                                      |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1. Capital which is used for purchasing real capital is called money capital. | Sunk capital is that which can only be put to single use.         |
| 2. Examples : Money to buy machines etc.                                      | Examples : A printing machine which can only be put for printing. |

**Answer 10.**

- (a) Price elasticity of supply is a measure of the degree of responsiveness of quantity supplied to changes in the product's own price.

**Factors :**

**1. Portability of shifting from Production :** The size or degree of response depends on how easily producers can shift from the production of other products to the one whose price has risen. If the producers can shift easily from one production to another, the supply would be more price elastic.

**2. Length of time :** Price elasticity of supply also depends upon the length of time for response. It may be difficult to change quantities supplied in few weeks or months in response to price change.

**3. Risk taking :** The elasticity of supply is determined by the willingness of the entrepreneurs to take risk. If they take risk, the supply will be more elastic.

- (b) (i) **Internal debt** is that debt which is raised by the Govt. from individuals and institutions etc. within the country. Internal debt is taken mainly for internal purposes *e.g.*, for developmental expenditure within the country.

**External debt :** In the case of external debt, the Govt. borrows from persons, institutions or governments of the foreign countries. *E.g.*, loans from World Bank, International Monetary Fund etc.

(ii) **Productive debt :** These are those debts which are used by the Govt. for those projects which yield income.

For example, loans used for the construction of railways, irrigation and power projects or for the establishment of heavy industries such as iron and steel, cement etc.

**Unproductive debt :** These loans refer to those loans which are incurred on those projects which do not yield any income.

For example, loans taken by the Govt. to finance a war and for covering the budgetary deficit.

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# ECONOMIC APPLICATIONS

# 2020

## QUESTIONS

(Two Hours)

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **all** questions from **Part I** and **any four** questions from **Part II**.

The intended marks for questions or parts of questions are given in brackets [ ].

### PART-I (40 Marks)

(Attempt **all** questions from this Part)

#### Question 1.

- (a) Mention one important difference between land and capital. [2]
- (b) In which form of market is the seller a price maker? Justify your answer. [2]
- (c) What is meant by an overdraft facility? [2]
- (d) State two positive roles played by Public Sector Undertakings in India. [2]
- (e) Draw a neat diagram to show a relatively elastic supply curve. [2]

#### Question 2.

- (a) Construction of dams has negative impacts on the ecosystem. [2]  
Give two reasons to justify the statement.
- (b) What is meant by labour in economics? [2]
- (c) A consumer purchased 60 units of a good at ₹ 7 per unit. But when price rises to ₹ 12 per unit, demand contracts to 40 units. Calculate the price elasticity of demand. [2]
- (d) Entrepreneurship is not labour even though there are human factors associated with the same business. Explain. [2]
- (e) Complete the following hypothetical individual supply schedule: [2]

| Price in ₹ | Quantity supplied in kgs. |
|------------|---------------------------|
| 40         | 25                        |
| 35         | (i)                       |
| 30         | 18                        |
| 25         | (ii)                      |

#### Question 3.

- (a) Differentiate between walking inflation and running inflation. [2]

- (b) Explain horizontal division of labour with an example. [2]

- (c) State two ways in which the Government can play an important role in the rapid agricultural development of a country. [2]

- (d) How is circulating capital different from fixed capital? [2]

- (e) What is joint demand? Give an example. [2]

#### Question 4.

Define the following terms:

- (a) Regressive Taxation [2]
- (b) Monopsony [2]
- (c) Migration [2]
- (d) Money [2]
- (e) Perfectly inelastic demand [2]

### PART-II (60 Marks)

(Attempt **any four** questions from this Part)

#### Question 5.

- (a) Define capital formation. [2]  
Explain three important factors affecting the rate of capital formation. [7]
- (b) Discuss any four negative impacts of industrialization. [8]

#### Question 6.

- (a) What is a Central Bank? Explain the following functions of a Central Bank: [7]
  - (i) Issuing paper notes
  - (ii) Acting as a banker to the Government
  - (iii) Lender of the Last resort
- (b) (i) Prepare a hypothetical individual demand schedule. [2]  
(ii) Draw the individual demand curve based on the schedule. [2]  
(iii) Explain any two determinants of demand other than price. [8]

#### Question 7.

- (a) What is privatisation? Explain three arguments favouring privatisation. [7]
- (b) What do you understand by Efficiency of Labour? Explain three factors affecting efficiency of labour. [8]

#### Question 8.

- (a) What is a monopolistically competitive market? Explain the following features of this market: [7]
  - (i) Non-price competition



- (ii) Presence of Selling cost
- (iii) Price policy which is followed.

(b) Explain any four factors affecting productivity of land. [8]

**Question 9.**

(a) What are direct taxes? Explain how direct taxes:

- (i) are equitable
- (ii) increase civic sense
- (iii) are economical

[7]

(b) What are Commercial Banks?

Name any two Commercial Banks of India.

Explain the difference between Cash Credit and Bank Loans lent by the Commercial Banks. [8]

**Question 10.**

(a) Read the extract given below and answer the questions that follow:

**NDTV Profit, May 01, 2019**

State Bank of India, the country's largest lender, has reduced interest rate on savings bank accounts with balance of ₹ 1 lakh or more from today. The State

Bank of India customers with ₹ 1 lakh or more in their savings account will earn an interest of 3.25 percent.

Meanwhile, customers with less than ₹ 1 lakh in their savings bank accounts will continue to earn interest at the rate of 3.50 percent.

The move to reduce interest rate on deposits of more than ₹ 1 lakh comes as the State Bank of India is linking the interest rate to the RBI's repo or short-term lending rate. The interest rate on savings bank account may move up or down depending on what stance the Reserve Bank of India takes at the bi-monthly monetary policy meeting.

(i) What is monetary policy? [2]

(ii) What is Bank Rate? What is the effect of a reduction in Bank Rate? [4]

(iii) Will a reduction in the interest rate on savings account encourage or discourage savings? [1]

(b) Several causes have been identified by researchers for the poor performance of the public sector enterprises in India. [8]

Identify and explain four such causes.

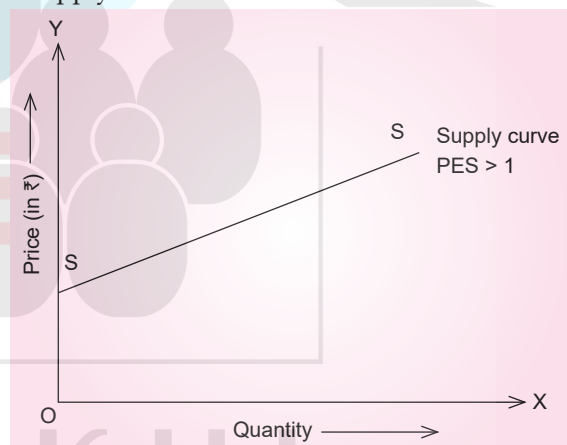
## ANSWERS

### PART-I

**Answer 1.**

- (a) Land is a fixed factor of production, whereas capital is a relatively variable factor of production. In other words, in the short run, the supply of land is fixed, whereas the supply of capital can be changed.
- (b) In the monopoly form of market, the seller is a price maker. It is because, in this form of market, there is a single seller and a large number of buyers. Monopolist is the sole producer of the product. Therefore, he has full control over the price of the commodity in the market. He can force up the price by reducing the output and force the price down by increasing the output.
- (c) Overdraft facility is a facility provided by the bank to its customers under which customers can withdraw money more than the actual balance in the bank account. This amount can be paid back by the customers after some days with an obligation of interest payment or payment for overdraft charges.
- (d) The two positive roles played by public sector undertakings (PSUs) in India are:
1. Generation of employment in the country.
  2. Generation of income in the country.
- (e) If the percentage change in the quantity supplied of the commodity is greater than the percentage

change in price then it is called as relatively elastic supply.



**Answer 2.**

- (a) Construction of dams has a negative impact on the ecosystem because of the following reasons:
1. The construction of dams leads to the release of greenhouse gases in the environment and the destruction of carbon sinks in water bodies.
  2. The construction of dams leads to the destruction of habitat of plants and animals and displacement of communities living in that area.
- (b) In economics, labour is one of the inputs used in the production process. It includes any form of physical and mental efforts done in production of goods and services for earning income which is called as wages.

- (c) Price elasticity of demand is calculated as follows:

$$\begin{aligned} \text{Price elasticity of demand} &= \frac{\text{Percentage change in quantity}}{\text{Percentage change in price}} \\ &= \frac{Q_2 - Q_1}{Q_1} \times 100 \\ &= \frac{P_2 - P_1}{P_1} \times 100 \\ &= \frac{40 - 60}{12 - 7} \times 100 = \frac{-20}{5} \times 100 \\ &= -0.46 \end{aligned}$$

- (d) An entrepreneur and labour are different in the sense that the entrepreneur has the responsibility of bearing the risk associated with the business. In contrast, the labour does not have such responsibility. Another point of difference is that labour has to work as per the ideas innovated by the entrepreneur and is not responsible for bringing the element of innovation into the business.
- (e) Hypothetical individual supply schedule.

| Price in ₹ | Quantity supplied in kg. |
|------------|--------------------------|
| 40         | 25                       |
| 35         | 22                       |
| 30         | 18                       |
| 25         | 15                       |

#### Answer 3.

- (a) Walking inflation refers to the rise in price level at a moderate rate. In contrast, running inflation refers to the rise in price level at a significant rate that creates additional economic costs.
- Walking inflation is a single-digit inflation with rate of increase in price level is in the range of 3% to 6% whereas running inflation is double digit inflation where the rate of increase in price level is around 10% per annum.
- (b) Horizontal division of labour refers to the division of labour so that all the different production processes can be divided into different parts in such a way that different parts of the process run simultaneously. For example: In the automobile industry, all labour is divided among different departments; different labour divisions make different parts of a car, and then the output of all the divisions are assembled to obtain the final car.
- (c) Government can contribute to rapid agricultural development in the following ways :

1. By providing incentives to farmers such as subsidies on electricity and establishing a minimum support price.

2. By establishing a healthy relationship between farmers and agro-based industries so that there can be the development of the agriculture sector in the economy.

- (d) Circulating capital refers to current assets used in the company's core activities less current liabilities associated with the company. It is also called as working capital. Examples are raw material, cash, inventory-in-progress, etc. On the other hand, fixed capital is a type of capital invested in long-term assets, such as factories, plants, machinery, etc. It is used in more than one production cycle.
- (e) Joint demand refers to the demand for two or more goods which are used jointly or demanded together. The demand for the goods having joint demand changes simultaneously. For example, car and petrol, butter and bread, milk and sugar.

#### Answer 4.

- (a) Regressive taxation is a taxation system in which the tax imposed on an individual is based on the income earned by him/her. A higher tax is paid by a person having a higher income than a person earning a lower income.
- (b) Monopsony refers to the market where there is only one buyer in the market. An example of a monopsony is that of the coal market, where the employers associated with coal excavation are the only buyer for the labour in that area.
- (c) Migration refers to settling down from one place to another to earn money for survival. For example, people migrate from rural areas to urban areas in search of work as urban areas have developed infrastructure that can aid employment.
- (d) Money refers to the medium of exchange through which goods and services are purchased and sold. Money can be plastic money (credit card / debit card) or paper money (dollars or any other currency).
- (e) Perfectly inelastic demand refers to the situation when the elasticity of demand is zero. In other words, when there is no change in quantity demanded with the change in the price. Such type of demand is observed in case of necessities. According to the geometrical method, the demand is perfectly inelastic when the demand curve is parallel to the price axis.

#### PART-II

#### Answer 5.

- (a) Capital formation refers to the addition of capital assets in the economy that leads to the nation's

economic development. For example, setting up new factories, plants, and machinery, etc.

Three factors affecting capital formation are as follows:

**1. Savings:** The level of saving determines the amount of capital formation in an economy in a period. The amount saved by the households is used as an investment by the firms to purchase plants and machinery, which is a part of capital formation.

**2. Profits:** When a firm earns profits, a part of them is used for reinvestment in the business. This reinvestment is done by increasing the number of machines used in production units or improving the whole unit's infrastructure. It leads to the creation of capital.

**3. Facilities of investment:** When the economy offers good investment facilities, such as investment options in mutual funds and commercial banks, people are more encouraged to save and invest. A larger amount of investment causes a larger amount of capital formation.

- (b) Industrialization refers to the growth in a number of industries in the economy. It means a shifting of dependence from the primary sector to the secondary sector (manufacturing sector). It helps in the country's economic development by boosting its GDP as more goods and services are produced when industrialization occurs.

Some of the negative impacts associated with industrialization are as follows:

**1. Pollution:** Setting up of industries in a region results in environmental pollution. The waste that is generated through the production process, often contains harmful chemicals and poisonous gases which is discharged in the nearby water bodies and in air. It results in water and air pollution.

**2. Destruction of habitat:** The setting of the industries is often done in the areas where raw material is readily available. The local communities living in such areas get displaced when industries are set up. Also, in such a process, deforestation is carried out in the target areas, leading to the destruction of habitat of the animal species residing there.

**3. Deterioration of health:** The people employed in industries face health issues as they are made to work in poor working conditions and for long hours. For example, people working in a bangle industry have to experience fume exposure for a long time, which have adverse impact on their lungs and eyes.

**4. Economic disparity:** Setting up of industries leads to a division among people based on those who can provide labour and provide capital. People who offer capital get higher incomes as compared to labour who have to work for lower wages. This widens the gap between rich and poor in the economy.

#### Answer 6.

- (a) Central Bank refers to apex bank of a country that controls the functioning of the banking system in any country. Central Bank frames rules and regulations for the banking sector of any country and also regulates them. RBI is the Central Bank of India.

Following are the functions of the Central Bank:

**(i) Issuing paper notes:** Central Bank is responsible for the supply of money in an economy. It has the monopoly rights to print the paper notes. Central Bank prints paper notes as per the ongoing availability of the same in the market and as per the requirement of the economy.

**(ii) Acting as banker to the government:** Central Bank works as a banker, agent, and financial advisor to the government. As a banker to the government, it manages the account of the government. As an agent it buys and sells government equities on the behalf of the government. As an advisor to the government, it helps the government in making policies to regulate the money market.

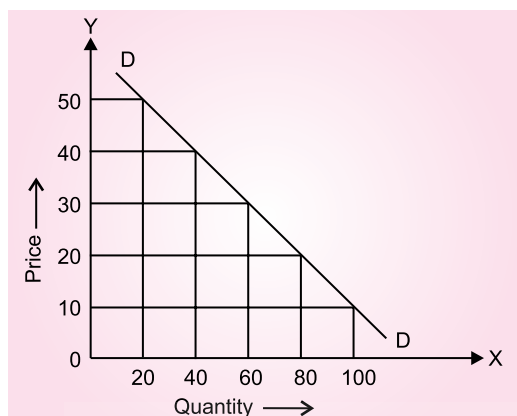
**(iii) Lender of the last resort:** It refers to that situation when Central Bank gives loan to the other commercial banks when they need it most and commercial bank has no other sources of collecting funds. By doing so Central Bank keeps the confidence of the people on banking system of the country.

- (b) (i) Individual demand schedule is framed below, by keeping in mind that demand and price have inverse relationship which means when price of good increases then demand of that good decreases.

| Price (in ₹) | Quantity (in kg.) |
|--------------|-------------------|
| 10           | 100               |
| 20           | 80                |
| 30           | 60                |
| 40           | 40                |
| 50           | 20                |

(ii) Below is the individual demand curve based on the above individual demand scheduled.





(iii) Two determinants of demand other than price are as follows :

**1. Consumer expectation:** Demand of any good get affected with the future expectation of the consumers regarding that good. For example, if consumer is expecting a shortage in the near future then they will plan to raise their current demand of that good.

**2. Taste and preferences:** When consumers' taste and preferences changes towards any product, then this will lead to the rise in the demand of that product. On the other hand demand decrease if taste and preference are against any product.

**Answer 7.**

(a) The process that leads to the transfer of ownership of any property or the business from the hand of the government to the private sector is known as privatisation. The transfer can either be partial or full.

Arguments in favour of privatisation are:

**1.** Privatization results in low public debts as it generates income to the government. Also, government do not have to bear the future losses.  
**2.** It also helps economy to have sustainable development which can be beneficial for economy. It will lead to efficiency in market and will avoid market failures in the economy as it increases competition.

**3.** It increases the quality of service as the main focus of the private sector is to satisfy the wants of their customer.

(b) Efficiency of labour refers to maximum work that labour can do within a given period time under certain prevailing conditions. It is evaluated by comparing how much quantity of a product is produced by the worker, the quality of the product and the time spent by the worker to produce that good.

Factors affecting efficiency of Labour :

**1. Health facilitates:** Health of a labour plays an important role while determining the efficiency of

any labour. A healthy labour can produce more output as compared to the unhealthy labour.

**2. Education:** An educated labour carries skill and knowledge that he/she can utilize in order to finish the task effectively and efficiently. This also leads to the innovation. Therefore, education plays a vital role in increasing the efficiency of the labour.

**3. Working condition in the organisation :** When there is safe and healthy working conditions in the organisation it will increase efficiency of labour. Thus, the efficiency of a labour is more if there are proper working condition for the labour in any organisation.

**Answer 8.**

(a) Monopolistic competitive market is the form of market in which there are large of buyers and sellers in the market. This market carries products having similar characteristics but are not identical, have relative freedom of entry into and exit out of the industry. Firms have to incur extensive marketing and selling expenses. For example: Toothpaste industry shows the characteristics of monopolistic market as brands like Colgate, Pepsodent and Sensodyne sells toothpaste having different smell, shape and size.

(i) **Non price competition:** Firms under monopolistic market do not compete in terms of prices. Instead, they use the features of their product in order to attract the customer base. Following marketing strategies are popular in this competition: Buy one get one free , additional gift with product, free membership, etc

(ii) **Presence of selling cost:** There is selling cost incurred by sellers in this market. It is because the sellers have to provide attractive offers to consumer in order to increase sales of their product.

(iii) **Price policy which is followed:** In monopolistic form of market, seller are price makers as there exist imperfect knowledge of price with the buyers. Therefore, firms set the price in this industry, and every firm may have its own price policy.

(b) Productivity of land is calculated by dividing the total amount of output produced by using land divided by the areas of the land used. The factors affecting productivity of the land are :

**1. Soil:** Fertility of the soil is an important factor that affects the productivity of the land. Less fertile soil will result in low productivity of land while good fertility leads to higher productivity.



**2. Irrigation facilitates:** When irrigation facilities are available to farmers then it will help in enhancing the land's productivity as water is one of most important requirements for land to be fertile.

**3. Improved methods of farming:** Introduction of new and improved methods of farming will result in higher productivity of land.

**4. Less use of fertilizers:** Using less fertilizers and using more organic manure will result in more productivity of land. The overuse of fertilizers decreases productivity of land.

#### Answer 9.

(a) A direct tax is that tax which is paid by that person on whom it is legally imposed. The burden of direct tax can not be shifted to another person.

(i) **Equitable:** Direct taxes are equitable as these are imposed as per the individual's ability to pay. Collected tax is spent on welfare of the society. This reduces the gap between rich and poor thus eliminates inequalities in the economy.

(ii) **Increase civic sense:** Direct tax increases civic sense among the people as people are more aware of payment of taxes and government becomes more aware of avoiding wasteful expenditure. This will avoid wastage of resources.

(iii) **Economical:** Direct tax is economical because it is easy to collect and there is less expenditure in collection of taxes by government. It requires less time and resources.

(b) Commercial banks are the institutions which deals in money *i.e.*, borrowing and lending of money. These banks accepts deposits and lend loans to the customers. In other words, it pool savings in a productive way. Profit for commercial banks is the difference between interest charged on loans from its customers and interest given to bank account holders on their deposits.

ICICI Bank and State Bank of India are the examples of commercial bank of India.

**Cash Credit:** In this bank advances a cash loan to the customer against a bond or security. The borrower opens a current account and bank allows borrower withdraw upto full amount of loan. The interest is charged on the amount actually utilized by the borrower.

**Loan:** It is the specified amount sectioned to the credit of the borrower for the fixed period. Loan is granted against some security of asset or personal security. Interest is charged on the full sanctioned amount of loan, irrespective of the amount used. The loan amount is repaid in instalments or as lump-sum.

#### Answer 10.

(a) (i) Monetary policy is the policy that is executed by RBI in order to control the inflation and deflation in the economy. It includes regulating of interest rates, reverse repo rates, Cash Reserve Ratios etc. by Central Bank.

(ii) Bank rate refers to rate at which Central Bank lend money to commercial banks. When there will be reduction in bank rate, there will be more credit creation by commercial banks, and this will increase the money supply in the economy. This policy is adopted when there is deflation *i.e.* (overall price level is low) in the economy.

(iii) Reduction of interest rates on saving account will discourage savings as the depositors will start looking to invest their money in other available options, which can offer better interest.

(b) There are four causes of poor performance of public sector enterprises in India are :

**1. Corruption:** Corruption and red-tapism is a major cause that create hindrance in performance of public sector enterprises as officials do work according to their self-interest.

**2. No strict monitoring :** All the departments in public sector enterprises works according to their own wish. There is no strict monitoring of various departments in the public sector. This is major cause of poor performance of PSU's.

**3. Lack of professionalism :** There is a lack of professional approach in the public sector enterprises. Due to lack of professional skills of their employees they are unable to run enterprises according to the need of current competitive environment.

**4. Market failures :** Due to political interference, decisions are not taken in a competitive manner. This leads to the market failure and cause poor performance of public sector enterprises.



# ECONOMIC APPLICATIONS

# 2019

## QUESTIONS

### PART-A (40 Marks)

(Attempt any **four** questions from this Part)

#### Question 1.

- (a) State the Law of Supply. [2]
- (b) "Entrepreneurs are innovators." Briefly explain. [2]
- (c) What do you understand by hyperinflation? [2]
- (d) Mining operations can destroy the ecosystem. [2]  
Give two reasons to support the statement.
- (e) Highlight the importance of selling costs in a monopolistically competitive market. [2]

#### Question 2.

- (a) Land is heterogeneous in nature. Explain. [2]
- (b) How does the presence of banks in a country help in capital formation? [2]
- (c) Which of the following is considered as labour in Economics? [2]
  - (i) Acting done by a film Star.
  - (ii) The judgement given by a judge in the court.
  - (iii) Washing of clothes by a washerman.
  - (iv) Preparation of tea by a housewife.
- (d) Why is money referred to as legal tender money? [2]
- (e) What is meant by product differentiation? In which market form is it prevalent? [2]

#### Question 3.

- (a) State the formula for calculating the Price Elasticity of demand using the Percentage method. [2]
- (b) Explain the impact of inflation on fixed income group of people. [2]
- (c) Give two examples of a pair of commodities that are substitutes of each other. [2]
- (d) Explain how an improper price policy results in the poor performance of public sector enterprises. [2]
- (e) Differentiate between capital and capital formation. [2]

#### Question 4.

- (a) How does direct tax reduce income inequality? [2]
- (b) What are Public Sector Enterprises? [2]  
Give two examples of Public Sector Enterprises in India.
- (c) Distinguish between sunk capital and floating capital. [2]

- (d) Briefly explain the following credit control methods adopted by the Central bank: [2]

- (i) Publicity
- (ii) Moral persuasion

- (e) Name any two instruments of Fiscal Policy. [2]

### PART-B (60 Marks)

(Attempt any **four** questions from this Part)

#### Question 5.

- (a) (i) Prepare an individual supply schedule. [7]  
(ii) Draw a supply curve based on the schedule prepared above.  
(iii) State three assumptions of the law of supply.
- (b) Explain four reasons as to why land is considered to be an important factor of production. [8]

#### Question 6.

- (a) Does a demand curve always have a negative slope. [7]  
Give three reasons to justify your answer.
- (b) Point out the differences between perfect competition and monopoly on the basis of: [8]
  - (i) Number of sellers
  - (ii) Market price
  - (iii) Entry of Firms
  - (iv) Type of products produced.

#### Question 7.

- (a) Why is labour an important factor of production. [7]  
Explain the following characteristics of labour.
  - (i) Labour cannot be separated from the labourer.
  - (ii) Labour can improve its efficiency.
  - (iii) Labour is perishable.
- (b) Discuss four ways in which an entrepreneur contributes to Economic development. [8]

#### Question 8.

- (a) Define Money. Explain the secondary functions of money. [7]
- (b) Explain the methods adopted by Commercial Banks to mobilize funds from the public. [8]

#### Question 9.

- (a) What is meant by urbanisation? [7]

Explain three negative impacts of urbanisation on the eco-system.

- (b) State two merits and two demerits of direct taxes.

[8]

### Question 10.

- (a) Read the extract given below and answer the questions that follow:

*Economic Times, April 12, 2018, New Delhi*

NEW DELHI: The Tata Group remains in the race for Air India, the debt-laden national carrier on which IndiGo, Jet Airways and Emirates are no longer keen. Other airlines still interested in participating in the privatisation of Air India include Lufthansa and Singapore Airlines. Reuters on Wednesday reported that the Tata Group is not interested in bidding for

Air India. But sources told ET that the Tatas have not pulled out, and are still interested in acquiring Air India along with a foreign partner.

Meanwhile, in another move that will allow bidders to change members between the initial and final bidding stages, likely suitors for Air India have sought a relaxation in the norms for consortia participating in the debt-laden carrier's **privatisation**.

- (i) Explain any two ways in which the government can undertake privatisation of public sector units. [2]

- (ii) State three reasons for the need for privatisation. [3]

- (b) Discuss four ways in which the State plays an important role in Economic Development. [2]

## ANSWERS

### PART-A

#### Answer 1.

- (a) The law of supply states that when the price of a goods or services goes up, the quantity supplied of the goods or services also increases and vice versa. The law of supply applies because when the price of a commodity increases, the sellers want to increase their profit by selling more quantity.
- (b) Entrepreneurs are innovators in the sense that they are determined to think differently and learn and derive new methods of undertaking business opportunities. Entrepreneurs are creative and they seek to apply new ideas in different situations. Also, they tend to see failure as an opportunity.
- (c) Hyperinflation is a situation when the rise in prices is 20% to 30% or more. This rise is uncontrollably high. Basically, hyperinflation is accelerating inflation. Hyperinflation very quickly diminishes the value of the currency and individuals tend to minimize their holding in the currency.
- (d) Mining operations can destroy the ecosystem because of the following reasons:
1. If mining is carried out near some water bodies, then it can lead to acid drainage. When metals mix with water, the water becomes acidic, which can cause severe health problems among living being that persist for centuries.
  2. Mining can increase the chances of climate change. For example, in coal mining, methane is produced which is a greenhouse gas. Greenhouse gases are responsible for an increased rate of global warming.
- (e) Selling costs play an important role in monopolistic competition. Under monopolistic

market, firms compete to promote their sales by spending money on advertisements, branding and publicity. Selling costs include salaries of workers, fee of retailers to display the product, etc. Selling costs include all the costs that help to increase the demand of a product. Also, producers have to take price and output decisions to ensure profit maximisation. Therefore, as selling cost increases, the demand and the price of the product is likely to go up in monopolistic competition.

#### Answer 2.

- (a) Land comprises of soil, forests, villages, etc. Land is heterogeneous because the quality of soil and the type of trees are not the same across geographical locations. For instance, the soil may be very fertile in plain lands with several water bodies around and may not be too fertile in highly mountainous and rocky regions.
- (b) Banks mobilize the savings of people through the network of branches all over the country and make these funds available for productive purposes. Banks offer attractive schemes and policies to attract people to save their money with them and thus, help to mobilize the idle savings of the people to the organised money market.
- (c) Labour indicates physical and mental effort taken by individuals to produce goods and services to earn money. Any effort taken for the welfare of family or personal leisure is not considered as labour. Therefore, acting done by a film star, judgment given by a judge and washing of clothes by a washerman are all considered as labour. However, preparation of tea by a housewife is not considered as labour.



- (d) Money is referred to as legal tender money because it is recognised by the government and law as an official medium of payment that can be used to pay off any debt, public or private. The currency of a nation is considered to be legal tender as individuals are obligated to accept the money or currency towards the payment of a goods or services. No one can refuse to accept it.
- (e) Product differentiation refers to including unique characteristics in a product that help producers in distinguishing a product from their competitors' products. Product differentiation can be physical differentiation, perceived differentiation or differentiation that arises due to difference in customer support services, design, price, quality, packaging, brand names, etc. Product differentiation occurs in monopolistic competition.

**Answer 3.**

- (a) The price elasticity of demand is calculated as the ratio of percentage change in quantity demanded and percentage change in price.

Price Elasticity of Demand

$$E_p = \frac{\% \text{ Change in quantity demanded of a commodity}}{\% \text{ Change in price of commodity}}$$

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Where Q is the quantity demanded prior to change in Price and P is the previous price of the commodity and  $\Delta Q$  ( $Q - Q_1$ ) and  $\Delta P$  ( $P_0 - P_1$ ) represent the change in quantity demanded and price.  $Q_1$  and  $P_1$  are the new quantity demanded and new price respectively.

- (b) Inflation erodes the value of money. Therefore, inflation reduces the purchasing power of people having fixed income, as a result, their demand for goods and services goes down. This is because the real income of people reduces due to inflation.
- (c) Examples of substitute goods are: 1. Tea and Coffee, 2. Butter and margarine.
- (d) An improper price policy is likely to result in low or no profits. Thus, when public sector enterprises do not formulate proper price policies, they may face high losses or run in debt which is likely to increase government expenditure and government debt. Also, as a result of such low prices, the quality of the public utility goods is usually of poor quality.
- (e) Capital refers to the tangible assets of production such as manufacturing equipment, machinery and financial assets, while capital formation refers to

an addition to the existing stock of capital. When savings of individuals are mobilized and invested in productive activities, capital formation takes place. Capital is a stock concept while capital formation is a flow concept.

**Answer 4.**

- (a) Direct taxes can help in reducing income inequality by creating tax slabs in such a way that people with higher income and resources pay higher taxes than people with lower income and resources. Doing so, it would help to reduce the gap between post-tax incomes of the people. The state can spend the tax amount for rural development and employment generation.
- (b) A government-owned enterprise is called as public sector enterprise in India. In such companies, government is the major stakeholder, and such industries are administered by the Ministry of Heavy Industries and Public Enterprises. Examples of Public Sector enterprise are: Oil and Natural Gas Corporation (ONGC) and Steel Authority of India (SAIL).
- (c) Sunk capital refers to the capital that can be put to a unique use to produce only one type of commodity or service. Sunk capital is also called as specialized capital. For example, a printing machine. On the other hand, floating capital refers to the capital that can be put to alternative use. Floating capital is also known as free capital. For example, raw materials, steel and wood.
- (d) **The credit control methods adopted by Central Bank are:**
- (i) **Publicity:** To make the policies successful, Central Bank uses the method of publicizing the policies. A policy becomes successful when a positive public opinion is created for the policy. Publicity of a policy is done through weekly reports, periodical reviews, statement of assets, liabilities and balance sheets for the guidance and reference of commercial banks to the people of the country. This also helps the public to develop an economic acumen and prospective to understand economic policies.
- (ii) **Moral Persuasion:** Central Bank can persuade or pressurise the member banks to agree upon the credit policies. The member banks generally follow the advice of the Central Bank. Central Bank advises the member banks to lower or restrict the flow of credit during inflationary periods and increase the flow of credit during deflationary periods.
- (e) The two instruments of fiscal policy are taxation and public expenditure.



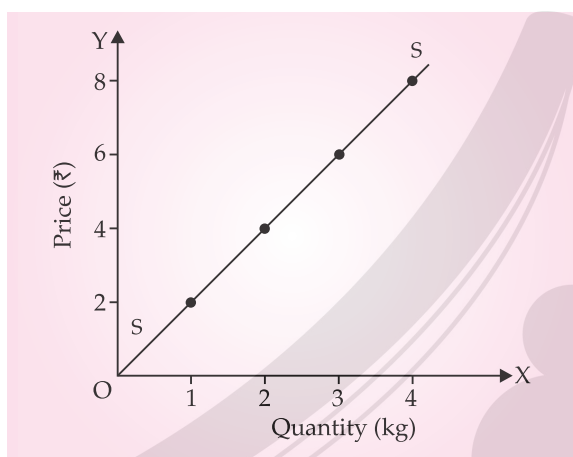
## PART-B

Answer 5.

(a) (i) The individual supply schedule:

| Price (₹) | Quantity (kg.) |
|-----------|----------------|
| 2         | 1              |
| 4         | 2              |
| 6         | 3              |
| 8         | 4              |

(ii) The supply curve based on the supply schedule mentioned above.



(iii) Three assumptions of law of supply are as follows:

**1. The price of related goods must not change:** If prices of related goods increase faster than the good that a producer sells, he or she is likely to start producing the good with higher prices.

**2. The cost of production must not change:** If the cost of production increases, the quantity supplied of a good is likely to decrease and vice versa.

**3. The government policies must not change:** If the government policies change in favor of a good, the quantity supplied of a good is likely to increase and vice versa.

(b) Land is considered the primary factor of production because land comprises of soil, coal, water and petroleum, which are used for generating food, fuel and power. Land is required to construct factories and industries to carry out the production process. A nation's economic wealth is directly related to the richness of its natural resources. The quality and the quantity of agricultural wealth of a country depends on the type of soil, climate, rainfall and water resources. The industrial progress and prosperity of a nation depends upon mineral resources. The presence of rich coal mines, waterfalls or petroleum wells directly help in the generation of electric power,

which is a key factor for industrial development. The localization of industries invariably depends on proximity of power and raw materials. Land determines agricultural production. Land is a very crucial resource because of the following reasons:

1. The industrial progress and prosperity of a country depends upon availability of mineral resources, that comes from land.
2. Land determines total production of a country.
3. It influences the economic growth of a country.
4. It maintains ecological balance.
5. It directly or indirectly fulfills the basic needs of the people.
6. Trade is influenced by land.

Answer 6.

(a) No, there can be exceptions to a downward sloping demand curve. In some cases demand curve can be positively sloped these situation are as follows:

**1. Giffen goods:** Giffen goods are those inferior goods on which the consumer spends a large part of his income and the demand for which falls with a fall in price and rises with a rise in price. Example: 'maize' and 'jowar' are inferior food items for an average consumer. They are consumed largely by poor people. As the price of 'maize' and 'jowar' falls, real income of the consumer increases. With a increase in real income, the consumer can afford to purchases superior foods like rice or wheat and vice-versa.

**2. Articles of snob appeal:** The law of demand does not apply to the commodities which serve as 'status symbol', i.e. increase social status or are a source of display of wealth and richness. Veblen has termed these goods as 'conspicuous goods' and their consumption as 'conspicuous consumption'. Diamonds are often given as examples of this case. Rich women would like to buy diamonds simply because their price is very high.

**3. Quality price relationship:** Sometimes consumers assume that high-priced goods are of higher quality than the low-priced goods. They take price as an index of quality. In such cases, more of the goods may be demanded at a higher price.

For example, some people buy more of 'Lux Supreme' (soap) having a higher price than ordinary 'Lux' (soap) having a lower price even though the two are almost of the same quality.

| (b) | Basis                          | Perfect Competition                                                                                                                                                                                                    | Monopoly                                                                                                                                                                                                                                                                                    |
|-----|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | (i) Number of sellers          | There are large number of sellers in the market so that no single seller can influence the price of a good or service.                                                                                                 | There is just one seller in the market who controls the entire production process. Also, there are no close substitutes of the good produced by the monopolist.                                                                                                                             |
|     | (ii) Market price              | The market prices are solely determined by the conditions of demand and supply. The prices freely change as the market demand and supply of a good or service changes. Sellers are price takers.                       | As there is one seller, the market price is totally controlled and determined by the monopolist. Sellers are price makers.                                                                                                                                                                  |
|     | (iii) Entry of firms           | There is no restriction or barrier to entry. Firms are free to enter or exit the industry. When super normal profits exist in industry, firms enter the industry. When firms incur losses, they can exit the industry. | There are high barriers or restrictions to entry. It is difficult for new sellers to enter the industry because either the existing firm controls the chief resource of production or has a very low cost of production. Therefore, new firms find it difficult to enter a monopoly market. |
|     | (iv) Type of products produced | Homogeneous goods and services are produced in large number. Each firm produces and sell homogeneous goods. Thus, the buyers have no preference over any individual seller as all sellers sell the same goods.         | Unique goods and services are produced. Since there are no close substitutes, the cross price elasticity among products is zero.                                                                                                                                                            |

**Answer 7.**

- (a) Labour is a very important factor of production as no activity can be carried out without the use of labour. Each activity such as running a machine, tilling land and printing require the application of labour for production process to be carried out. Labour can be physical or mental. Some activities such as undertaking a construction project may require more of physical labour, while designing the outlay of a building is likely to require more of mental labour. Both physical and mental labour are required to complete any task.

**Characteristics of labour are:****(i) Labour cannot be separated from the labourer:**

The efforts of a worker cannot be separated from him. A labourer's work has to be delivered in person. But this is not the case with other factors of production. For example, a farmer has to be present in the field to plough the field.

**(ii) Labour can improve its efficiency:** The quality of labour can be improved to a great extent by proper education and practical training, which need the establishment of schools, colleges, technical training institutions, workshops, etc. It has been observed that countries with better training facilities for their human resource can produce efficient and competent labour force.

**(iii) Labour is perishable:** If a labourer does not work for a day, his one day's work will be lost

forever. A labourer (worker) agrees to work even at a lower wage, when he feels that his labour is likely to be wasted. Because of this peculiarity, a labourer does not have the same bargaining power similar to his employer.

**(b) Four ways in which an entrepreneur contributes to economic development are as follows:**

The entrepreneur is the key to the creation of new enterprises that energize the economy and rejuvenate the established enterprises that make up the economic structure. Entrepreneurs initiate and sustain the process of economic development in the following ways:

**1. Capital formation:** Entrepreneurs mobilize the idle savings of the public through the issues of industrial securities. Investment of public savings in industry results in productive utilization of national resources. Rate of capital formation increases which is essential for rapid economic growth. Thus, an entrepreneur is the creator of wealth.

**2. Improvement in Per Capita Income:** Entrepreneurs locate and exploit opportunities. They convert the latent and idle resources like land, labour and capital into national income and wealth in the form of goods and services. They help to increase net national product and per capita income in the country, which are important yardsticks for measuring economic growth.

**3. Generation of employment:** Entrepreneurs generate employment both directly and indirectly. Directly, self-employment as an entrepreneur offers the best way for independent and honorable life. Indirectly, by setting up large and small scale business units they offer jobs to millions. Thus, entrepreneurship helps to reduce the unemployment problem in the country.

**4. Balanced regional development:** Entrepreneurs in the public and private sectors help to remove regional disparities in economic development. They set up industries in backward areas to avail various concessions and subsidies offered by the central and state governments. Public sector steel plants and private sector industries by Tatas and Birlas and others have put the hitherto unknown places on the international map.

#### Answer 8.

- (a) Money is anything which is generally acceptable as a medium of exchange and at the same time, acts as the measure and store of value and standard of deferred payments.

The secondary functions of money are.

**1. Standard of deferred payment:** Money acts as a standard of deferred payment, which means money can be used to make payment that are due at a later stage. The ability of money to act as a store of value and unit of value provides it the ability to act as a standard of deferred payment.

**2. Store of value:** Money serves as a store of value. This means that money has the ability to hold its value over time. Since money is a store of value, money can be stored and used in the future because the value of money does not diminish when it is stored.

**3. Transfer of value:** Money serves as a medium to transfer value. Goods and services can be purchased from any part of the world. However, to be able to sell and buy good from any country, we need to transfer purchasing power in terms of another currency. Money can help in transferring purchasing power across countries.

- (b) Commercial banks mobilise funds from the public by accepting deposits from the people for making investments and granting loans to various economic investors. The money is deposited in banks for the sake of safety as well as to earn interest. When people deposit money in banks, the money can be utilized for developmental and productive activities. To encourage individuals to deposit money in the bank, commercial banks offer different types of accounts and services with

different facilities and interest rates. Commercial banks accept deposits from the public in the following ways:

**1. Fixed deposit account:** In such accounts, the deposited amount can be withdrawn only after the period of time agreed upon by the bank and the depositor. The interest rates are higher in case of such deposits. The longer the period, higher is the interest rate.

**2. Current account:** A depositor can withdraw their money from such accounts at any time. Usually no interest is paid by the bank on such deposits, but in fact, the bank charges some amount for the services rendered on maintaining such deposits. On this account the bank provides overdraft facility also to the depositor against certain securities or personal guarantee. Such deposits are mainly kept by traders and industrialists who are required to make regular deposits and payments through banks.

**3. Savings deposit account:** This kind of account is opened by banks with the objective of collecting small savings from the people who have small earnings and deposit in small amounts as they like but the withdrawals are also allowed as per the policy of bank. However, the rate of interest is less than that on fixed deposits.

**4. Recurring deposit account:** In case of such deposits, an account holder has to deposit certain fixed amount every month for a specified period. The amount accumulated along with interest is paid to the depositor after the specified period. Rate of interest paid by the bank is higher than the savings account but less than the fixed deposit account.

#### Answer 9.

- (a) Urbanisation occurs when people migrate from rural areas to urban areas in search of a livelihood or better standard of living. This is because urban areas pay better opportunities to residents in the form of better paying jobs and living facilities. Urbanisation is bound to happen in a developing society, however, it has certain drawbacks. Some of the negative impacts of urbanisation are discussed below:

**1. Overcrowding:** If too many people start migrating to urban areas, the urban areas are likely to experience overcrowding. With many people moving to towns and cities, benefits of urbanization start dwindling. This is because eventually the opportunities start declining. Several people start competing for a limited number of jobs and resources, which results into



higher urban unemployment and more crime rates.

**2. Unemployment:** Unemployment is a gradual impact of overcrowding in urban areas. Jobs become scarce and the ratio of the jobs available per person deteriorates. Individuals have to struggle to earn a decent amount of money to keep with the expenses of urban life. With a large number of people in workforce, competition becomes high and, thus, more people become unemployed. This may also cause skilled labour to take up petty jobs to afford living in cities.

**3. Increased slums and poverty:** With a large number of people migrating to cities, rent becomes high as the demand for housing increases. However, the supply of rental houses is not likely to increase at the same pace as demand for rental houses. Therefore, slums are likely to develop as people may prefer living in small areas to save money. The opportunities start to become scarce, the level of education and health services deteriorates, and poverty increases.

**(b) Two merits of direct taxes are as follows:**

**1. Equity:** A direct tax is an equitable tax. A direct tax is equitable in the sense that it is imposed as per the taxable capacity of individuals. When direct taxes are imposed, the rich pay more than the poor. The rates of direct taxes, such as income tax, are fixed in a way that individuals with higher income pay higher taxes.

**2. Certainty:** There is certainty associated with direct taxes. For instance, individuals who have to pay income tax are aware of the tax slab and rate according to which they have to pay the tax. Therefore, they can take measures to save tax in time.

**Two demerits of direct taxes are as follows:**

**1. Tax evasion:** People can evade direct tax by submitting false details of income and wealth. Therefore, the administration of direct taxes is a costly affair for the government. Unless the citizens understand the importance of taxes and are well-aware of their civic duties, they are likely to evade taxes.

**2. Disincentive to work and save:** Direct taxes are likely to lower the incentive to work and save among people. The high rates of direct taxes are likely to demotivate businessmen from undertaking a new business venture. This is because people are demotivated to put a lot of hard work, and pay a large part of income earned in the form of taxes.

**Answer 10.**

**(i) The government can take privatisation of the public sector in the following ways:**

**1. Disinvestment:** Disinvestment refers to the sale of equity shares of public companies to the private sector. Disinvestment ensures the flow of capital and improved efficiency and financial discipline by the private sector. It also ensures that the government has additional funds to invest in welfare programs and social causes such as public health and sanitation.

Disinvestment shifts the commercial and financial risks to the private sector. It brings a company under the lense of corporate sector and reduces the amount of public debt. Disinvestment also benefits the consumers by increasing competition and lowering prices.

**2. Closure of sick units:** The government can decide to close the sick units if the chances of rehabilitation are low for a public sector company. The shutting down of a firm is likely to disturb and upset the workers and employees. However, the government provides a safety net to compensate for the loss of income. These sick public sector units are taken over by private sector. If they comes under unreserved categories.

**(ii) The reasons for privatization are as follows:**

**1.** Private sector can provide a much robust management to companies as the private firms are able to recruit and compensate qualified managers and technicians.

**2.** Private sector is relatively free to operate outside the political and bureaucratic constraints. For instance, in procurement of workers and fixing the conditions of overtime

**3.** Private sector has potentially greater experience in developing facilities and providing services that are attuned to the modern world competition and global trade. Private sector tends to have access to non-traditional resources for investment in the trade infrastructure which some individual governments may lack.

**(b) The state plays a very crucial role in economic development in the following ways:**

**1. Developing infrastructure:** It is not suitable for private enterprises to invest huge capitals into infrastructure projects. So the responsibility of infrastructure development lies with the state. The development of infrastructure is extremely essential for the development of an economy. For example, all the road, air transport and other infrastructure development projects were undertaken by the public sector post-



independence. Till date, the state has a crucial role to play in infrastructure development. Under the current government, several road and highway projects were undertaken. The government is also aiming at bringing down the cost of air turbine fuel so that the air fares go down and maximum Indians can fly. The state understands that a lack of inter-connectedness prevents the efficient movement of people which is likely to hinder economic development.

**2. Regional balance:** Private sector companies are likely to focus on industrial areas. As a result, the backward areas and the villages may be excluded from economic growth. However, the state ensures that growth occurs throughout the country in a balanced way. Thus, the government set up public sector units and factories in backward areas to bring employment opportunities and economic development in such areas.

**3. Check on the concentration of economic power:** With a boom in private sector, the wealth is likely to get concentrated with handful people. This may lead to concentration of economic power and monopolistic tendencies. The public sector helps to keep this in check by ensuring employment and growth opportunities to masses.

The income generated by a public enterprise is shared by a large number of employees and also the public at large. Thus, the state helps to restore economic equality.

**4. Public health and sanitation:** A healthy population is very important for the economic development of a country. The development and maintenance of public health services is an important function that the state has to perform. It is essential that the health of people is maintained to increase the efficiency and productivity of labour. Public health measures generally include the improvement of sanitation in rural and urban areas, better disposal of sewage, control of communicable diseases, removal of stagnant and polluted water, provision for medical and health services in the field of maternity and child care, health and family planning education and the training of health and medical personnel. All these expenditures are incurred by the state to ensure proper health services for the masses as a healthy population is better equipped to work and add to the growth of a nation. Public health is of greater significance in under-developed and developing countries as better health services improve the efficiency of labour.



GURUKUL

# ECONOMIC APPLICATIONS

2018

## QUESTIONS

### PART-A (40 Marks)

(Attempt all questions from this Part)

#### Question 1.

- List any two causes for the low efficiency of labour in India. [2]
- Draw a neat labelled diagram of a demand curve. [2]
- Give any two reasons as to why a country needs a Central Bank. [2]
- Out of the following capital used in the cotton textile industry, classify the following as fixed or circulating capital: [2]
  - Cotton yarns
  - Dyes
  - Power
  - Weaving machines
- What are progressive taxes. Give an example. [2]

#### Question 2.

- 'Capital is a passive factor of production.' Justify the statement. [2]
- Which bank is referred to as a 'Banker's Bank'? Why is it called so? [2]
- State any two differences between Monopolistic competition and Perfect competition. [2]
- Which section of the society gains during inflation? Why? [2]
- Explain two ways by which the government can reduce income inequalities in a developing economy. [2]

#### Question 3.

- Mention two ways in which an entrepreneur is different from labour. [2]
- Differentiate between current and savings deposits. [2]
- Briefly explain any two impacts of shifting cultivation on the ecosystem. [2]
- Name a market where selling cost is not required. Give a reason for your answer. [2]
- Given below is the market supply schedule of a commodity. The individual supply schedules of firms B and C are given, prepare the individual schedule for Firm A: [2]

| Price (in ₹) | No. of units supplied by Firm A | No. of units supplied by Firm B | No. of units supplied by Firm C | Total Supply |
|--------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| 10           |                                 | 25                              | 10                              | 60           |
| 20           |                                 | 30                              | 20                              | 100          |
| 30           |                                 | 35                              | 30                              | 140          |
| 40           |                                 | 40                              | 40                              | 180          |

#### Question 4.

Define the following terms:

- Price elasticity of demand [2]
- Proportional taxation [2]
- Capital formation [2]
- Labour [2]
- Inflation [2]

### PART-B (60 Marks)

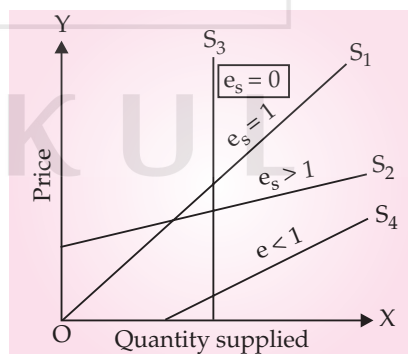
(Attempt any four questions from this Part)

#### Question 5.

- What is considered as capital in economics? [7]
  - Discuss any three characteristics of capital. [8]
- Explain how the following factors affect the supply of a commodity: [8]
  - State of technology.
  - Price of factors of production.
  - Goals of the firm.
  - Future price expectations.

#### Question 6.

- Name any two industries where division of labour is possible. [7]
  - Explain any three demerits of division of labour. [8]
- Identify and define the degree of price elasticity of supply from the diagram for the supply curves  $S_1$ ,  $S_2$ ,  $S_3$ ,  $S_4$ . [8]



#### Question 7.

- What happens to the demand curve when there is an increase in demand? [7]
  - Discuss three instances when demand will increase. [8]
- Explain any four ways by which Public Sector Enterprises play a dominant role in an economy. [8]

**Question 8.**

- (a) Who controls the credit supply in an economy? What is this policy called? Explain how the following can control inflation in an economy: [7]  
 (i) Cash Reserve Ratio  
 (ii) Statutory Liquidity Ratio
- (b) (i) Why can a monopolist charge different prices in different markets?  
 (ii) Explain any three features of monopoly. [8]

**Question 9.**

- (a) What is privatization? Explain the following arguments favouring privatization: [7]  
 (i) Greater flexibility in decision making.  
 (ii) Better utilization of resources.  
 (iii) Greater employment opportunities.
- (b) Explain clearly four differences between a Central Bank and a Commercial Bank. [8]

**Question 10.**

Read the extract and answer the following:

**Post: Gaurav Akrani**

Indirect taxes have become an important source of development funds in developing countries. Many

developing economies that have adopted economic planning use indirect taxes as important source of funds.

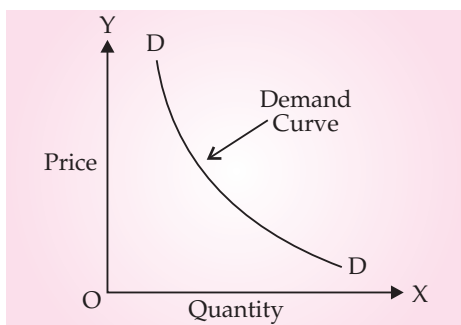
These taxes are found to be better suited in developing countries because they have much wider coverage as compared to direct taxes. Both rich and poor pay indirect taxes in the form of commodity price.

- (i) What are indirect taxes? [2]  
 (ii) Mention three important differences between direct and indirect taxes. [3]  
 (iii) Classify the following into direct and Indirect taxes: [2]  
 1. Custom duty  
 2. Professional tax  
 3. Income tax  
 4. Entertainment tax
- (iv) Give two reasons why indirect taxes are important in developing countries. [4]  
 (v) Explain clearly how indirect taxes can be both regressive and progressive. [4]

**ANSWERS****PART-A****Answer 1.**

- (a) The two causes for the low efficiency of labour in India are:  
 1. **Hot and enervating climate:** India is a sub-tropical country and its climate is hot and enervating which reduces the worker's capacity for hard and continuous work for long hours. This is the most important natural cause of low efficiency of labour in India.  
 2. **Uncongenial factory environment:** Many factories in India have poor and unhygienic working conditions. The facilities of canteen (i.e., low-cost meals), recreation and relaxation are not provided. This creates an uncongenial environment and affects the productivity of the workers.

(b)



- (c) The two reasons why a country needs a Central Bank are:

1. **Need for state control over the issue of currency notes:** For maintaining proper uniformity, elasticity and security in the issue of currency notes, the country needs a Central Bank. With the continuous growth in trade and commerce within the economy, the demand for currency notes, i.e., the common exchange medium, was also increasing. Hence, it was necessary to increase the supply of the 'legal tender' or the currency notes issued by the monetary authority.

2. **Need for the promotion of a well-organised money market:** If a large segment of the money market is unorganised and consists of indigenous bankers, then credit control policies cannot work in an effective manner. Hence, every economy needs the establishment of a Central Bank that would help in making the money market much more organised and well-knit in nature.

- (d) (i) **Cotton yarns:** Circulating capital because it can be used only once for a specific purpose.  
 (ii) **Dyes:** Circulating capital because it doesn't have a long life and is required again and again.  
 (iii) **Power:** Circulating capital because it can be used only once for a specific purpose.  
 (iv) **Weaving machines:** Fixed capital because it has a long life and can be used again and again.
- (e) **Progressive taxes:** Taxes in which the rate of tax increases with the rise in tax payer's income, are

called progressive taxes. Thus, in a progressive tax, the amount of tax paid will increase at a higher rate than the increase in tax base or income. The taxation amount is the product of the base by the rate and both these increase in a progressive tax. For example, India's taxation system is a progressive tax system in which the income is taxed at 5 per cent from ₹ 2.5 lakh to ₹ 5 lakh, 20 per cent from ₹ 5 lakh to ₹ 10 lakh, etc.

#### Answer 2.

- (a) Capital is a passive factor of production because it refers to all the man-made factors of production which helps in further production. But capital is a non-living entity. It cannot produce anything of its own. It is an entrepreneur who employs all the capital into some purposeful activity. It requires labour to operate it. Without an entrepreneur, capital cannot do anything.
- (b) The Central Bank of the country is referred to as a 'Banker's Bank'. In other words, the relations of 'Central Bank' with other banks of the country are similar to those of a bank with its customers. And as a matter of legal obligation, the commercial banks have to keep certain portion of their deposits with the 'Central Bank' as cash reserves. These cash reserves enables the Central Bank to exercise control of the issue of credits by the commercial banks, thereby keeping the entire credit-system elastic. As a banker's bank, the Central Bank also allows the facility of short-term loans and discounting of the bills to the commercial banks. The 'Central Bank', by notification also advises the commercial banks of the country in matters relating to their business like fixation of rate of interests on deposits and loans, etc.
- (c) **Difference between Perfect Competition and Monopolistic Competition**

| Basis of Difference | Perfect Competition                                        | Monopolistic Competition                                      |
|---------------------|------------------------------------------------------------|---------------------------------------------------------------|
| Product             | Product of all the sellers and producers is homogeneous.   | Product is differentiated.                                    |
| Price Policy        | All the sellers and producers follow uniform price policy. | All the producers and sellers follow individual price policy. |

- (d) During inflation, the producers and businessmen gain in the short-period. Usually, the cost of production does not rise as fast as the price of

their product and so there develops an artificial margin of profit. As against this, they may also be affected adversely in the long run. If the price level goes on increasing, the total consumption of their product would fall. The reduced consumption will ultimately raise the cost of production per unit and reduce the profits.

- (e) Following are the two ways in which a developing country may reduce income inequalities:

**1. Progressive taxation:** Progressive taxation is one way through which the income inequalities may be reduced to some extent. Through taxation, the government may withdraw some purchasing power from those who have a low marginal utility of money and spend it on those who have a high marginal utility of money.

**2. Labour-intensive development programme:** Poverty arises out of unemployment. The government may initiate labour-intensive development programmes so that, some kind of employment opportunities may be developed. This will help in reducing income inequalities.

#### Answer 3.

- (a) Following are the factors which create a distinction between the entrepreneur and a labour:

**1. Nature of risk:** Labourers are not involved to bear the risk in the business. They receive the reward for their labour. On the contrary, an entrepreneur has to bear all the risks involved in the business.

**2. Types of return:** Labourers get the wages for their work in a certain period while an entrepreneur receives the profit in return of work.

- (b) **Distinction between the Current Deposit Account and Savings Account**

| Basis of Difference | Current Deposit Account                                                | Savings Account                                                     |
|---------------------|------------------------------------------------------------------------|---------------------------------------------------------------------|
| Utility             | It is maintained by businessmen for their daily transactions of money. | It is maintained by households or salaried class for their savings. |
| Rate of interest    | No interest is allowed.                                                | Low rate of interest is allowed.                                    |
| Overdraft           | Overdraft facility is available only on this account.                  | Overdraft facility is not available.                                |

- (c) Following are the two impacts of shifting cultivation on ecosystem:



1. Slash and burn method of shifting cultivation involves burning down of trees, which releases harmful gases into the atmosphere and causes air pollution. These harmful gases affect the health of the people living in the surrounding area.

2. Shifting cultivation can also kill many species of flora and fauna in the process, so it is a major cause of loss of biodiversity.

- (d) Perfect competition is the market structure in which selling cost is not required because in this market structure, every seller sells a homogeneous product which cannot be distinguished in any way from the product of another seller.

(e)

| Price (in ₹) | No. of units supplied by Firm A | No. of units supplied by Firm B | No. of units supplied by Firm C | Total Supply |
|--------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| 10           | 25                              | 25                              | 10                              | 60           |
| 20           | 50                              | 30                              | 20                              | 100          |
| 30           | 75                              | 35                              | 30                              | 140          |
| 40           | 100                             | 40                              | 40                              | 180          |

**Answer 4.**

- (a) **Price elasticity of demand:** Price elasticity of demand may be defined as the percentage change in the quantity demanded of a commodity divided by the percentage change in the price of that commodity.
- (b) **Proportional taxation:** Taxes in which the rate of tax remains constant, though the tax base changes, are called proportional taxes. Here, the tax base may be income, money value of property, wealth or goods, etc. Income is, however, regarded as the main tax base, because it is the determinant of taxable capacity of a person.
- (c) **Capital formation:** Capital formation refers to the making or increasing of more capital goods, such as machines, tools, factories, buildings, etc., which are to be used in producing more goods. In simple words, capital formation means creation of capital.
- (d) Refer to ICSE Paper 2020, Answer 2 (b).
- (e) **Inflation:** Inflation is defined as, “a sustained rising trend in general price level or a rate of expansion of money-income greater than the rate of growth of real output.” Under such circumstances, the general price increases and in turn, the value of money decreases.

## PART-B

**Answer 5.**

- (a) (i) Capital is a man-made resource of production. Machines, tools and equipments of all kinds, buildings, all means of transport and communications, raw materials, etc., are included in capital.

“Capital consists of all those goods, existing at present time which can be used in any way, so as to satisfy wants during the subsequent years”.

—J. R. HICKS

- (ii) Three important characteristics of ‘Capital’ are as follows:

1. **Capital is result of savings:** Capital is man-made and is born out of savings done by man. Its supply is increased or decreased by the efforts of man. Thus, capital is a man-made factor of production which is a result of savings.

2. **Capital is not an indispensable factor:** Capital is not an indispensable factor of production. Production can be possible even without capital, whereas land and labour are the original and indispensable factors of production.

3. **A mobile factor:** Capital has the highest mobility amongst all the factors of production. The land is immobile, labour has low mobility, whereas ‘capital’ has both ‘place mobility’ and ‘occupational mobility’.

- (b) The major factors govern the supply of a commodity in the following way:

(i) **State of technology:** Technological development results in an incessant increase in the supply of various products. Technological improvement, on one hand, brings down the costs, and on the other hand, raises the profits of the producers. This naturally provides incentives to them to increase the supply of their products. An example is the innovation and improvement in textile machinery which has considerably increased the production and supply of cotton textiles.

(ii) **Prices of factors of production:** When prices of inputs (factors) of production increase, the cost of product also increases which discourages the producers-suppliers to increase the supply. On the other hand, when there is a decrease in the prices of inputs, the final product becomes cheaper and the margin of profit increases, which ultimately results in an increased supply of the commodity to the market.

(iii) **Goal of the firm:** In economic theory, it is often assumed that firms operate with a view to maximize their profits. But recently, some

empirical studies have revealed that sometimes firms wish to capture extensive markets for their products so as to maximize their sales. It is based on the principle that when the sales are increased, the ultimate profits also increase. If the firm is guided by the latter objective, it will offer relatively larger quantities for sale in various markets at different prices.

**(iv) Future price expectations:** If the sellers expect a price reduction in future, they prefer to dispose off their stocks at the earliest, as a result of which, the supply of a commodity increases. On the other hand, if any increase in price is expected, the suppliers will try to hold their stocks in order to earn higher profits in the near future.

#### Answer 6.

- (a) (i) "Division of labour is defined as a system wherein the operations necessary to make a finished product are so minutely divided that each worker performs only one or at most only a few simple operations."

—A.H. SMITH

Two industries where division of labour is possible are:

Automobile and textile industries.

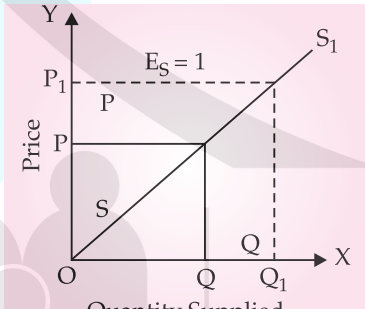
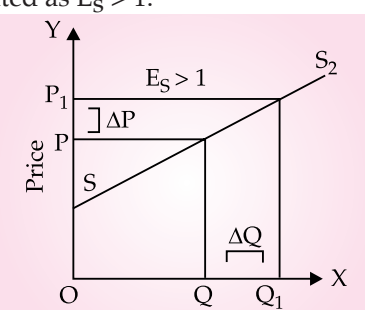
There are certain inherent demerits in such a system, which are as follows:

**1. Monotony of work:** Under the division of labour, the worker is required to perform the same type of job again and again. The job becomes monotonous and the worker gradually loses interest in it. The zeal and initiative to learn and do something new gets diminished, if he continues the same job for months together, this causes a kind of mental fatigue. Ultimately, it becomes harmful, both to the employer as well as to the worker, because under the condition of mental fatigue, the quality of work deteriorates. To overcome this situation, the assignment of some new type of work must be planned, which may provide a kind of freshness to the mental status of the worker.

**2. Lack of skill and craftsmanship:** Lately, it has been observed that, mastery of ancient craftsmanship and artistic skill is disappearing gradually, as the worker is required to perform only a part of the total work. For example, a worker in a shoe factory knows either making of sole or simply finishing the job of the shoe. Thus, division of labour results in the disappearance of artistic skill among the workers, because their contribution in completion of a commodity is not so significant.

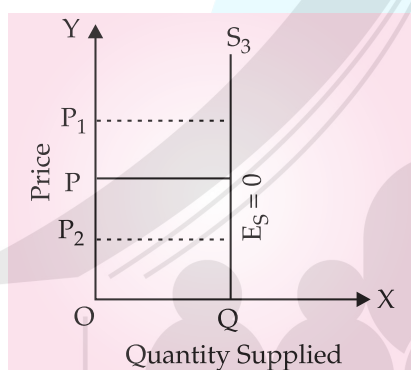
**3. Excessive interdependence:** Due to specialisation (division) of labour, the interdependence between workers increases manifold. Since every worker produces only a small part of the complete commodity, they depend on each other for the final product. In case a unit of workers decides to remain absent, the whole of the production line is effected.

(b)

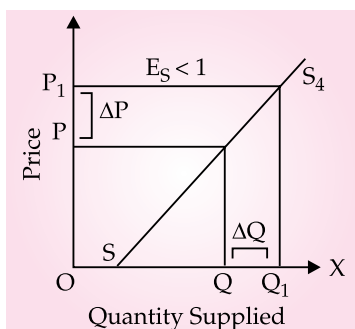
|                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S <sub>1</sub> | <p><b>Unitary elastic supply:</b> Elasticity of supply is unitary when the percentage change in the quantity supplied is equal to the percentage change in the price of the commodity. The supply curve SS<sub>1</sub> which is a 45 degree line, represents unitary elastic supply curve in the given figure. Herein a change in price from OP to OP<sub>1</sub> brings about an equal change in the quantity supplied from OQ to OQ<sub>1</sub> percentage wise. Symbolically, <math>E_s = 1</math>.</p>                                      |
| S <sub>2</sub> | <p><b>Relatively elastic supply:</b> Supply is said to be relatively elastic when the percentage change in quantity supplied is greater than the percentage change in price. Herein a change in price from OP to OP<sub>1</sub> brings about a higher percentage change in the quantity supplied from OQ to OQ<sub>1</sub> in given figure. Supply curve SS<sub>2</sub> represents relatively elastic supply curve. It originates from the y-axis. Symbolically, relatively elastic supply can be represented as <math>E_s &gt; 1</math>.</p>  |

S<sub>3</sub>

**Perfectly inelastic supply:** Supply is perfectly inelastic when a change in the price causes no change in the quantity supplied. In other words, price has no influence on the quantity supplied. Here, the supply curve will be a vertical line parallel to y-axis. As shown in the given figure  $SS_3$  is a perfectly inelastic supply curve and is parallel to y-axis. It signifies that even if the price changes to  $OP_1$  or  $OP_2$  from  $OP$ , the quantity supplied remains unchanged *i.e.*,  $OQ$ . In this case, elasticity of supply is said to be zero (or  $E_s = 0$ ). Supply of rare books, paintings, stamps and coins are some examples.

S<sub>4</sub>

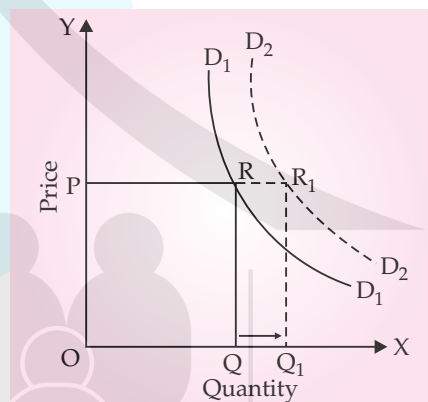
**Relatively inelastic supply:** Supply is said to be relatively inelastic when the percentage change in the quantity supplied is smaller than the percentage change in price. Herein, a change in price from  $OP$  to  $OP_1$  brings about a smaller percentage change in quantity supplied from  $OQ$  to  $OQ_1$  in the given figure. Supply curve  $SS_4$  in the following figure is less elastic. It originates from x-axis. Symbolically, relatively inelastic supply is represented as  $E_s < 1$ .

**Answer 7.**

- (a) (i) Whenever there is a positive change in the factors determining the demand of a commodity (except the price of the commodity), the increase in demand takes place. In this case, the entire demand curve shifts upward or rightward. This shift is expressed as increase in demand.

There are several conditions on which the demand for a product depends, such as the number of consumers, the level of income and wealth of consumers etc. If there is change for the better, then there will be an upward shift in demand which is known as increase in demand.

In the given figure quantity of commodity is represented on the X-axis, and price is represented on the Y-axis.  $D_1D_1$  is a demand curve, which is prepared on the basis of a given number of consumers, level of income or wealth of consumers, tastes, preferences, etc.



At the price of  $OP$ , consumers demand  $OQ$  quantity. Now suppose the assumptions change and there are now more consumers in the market; their income and wealth have gone up; they like the commodity more, and so on. As a result of these changes, the old demand curve  $D_1D_1$ , is gradually pushed upward or rightward and a new demand curve, *viz.*  $D_2D_2$  comes into existence.  $D_2D_2$  is given as a dashed (or dotted) curve to distinguish it from the old demand curve. At the price of  $OP$ , consumers previously demanded  $OQ$  quantity, but now they demand  $OQ_1$  quantity.

(ii) Following are the three instances when demand will increase:

**1. Income of the consumer:** A key determinant of demand is the level of income *i.e.*, the higher the level of income, the higher the demand for a given commodity. Consumer's income and the quantity demanded are generally positively related. It means that when the income of the consumer rises, he wants to have more units of that commodity. If the income of the consumer increases, the



demand curve for normal commodities will shift rightwards.

**2. Consumer's tastes and preferences:** Demand for a product is also affected by the tastes and preferences of the consumers. As tastes and preferences shift to any commodity, demand for that commodity will increase and the demand curve will shift to the right.

**3. Expectation of future prices:** The current demand of a product depends on its expected price in the near future. If future price is expected to rise, its present demand immediately increases because the consumer has a tendency to store it at a low price for his future consumption. In this situation, the demand curve will shift rightward.

(b) Public sector enterprises play a dominant and dynamic role in the economic development of a country which is evident from the following:

**1. Establishment and development of basic heavy capital goods industries:** Public sector enterprises take the responsibility of establishing and developing basic heavy capital goods industries which require huge capital and high risks and have a long gestation period, such as atomic energy, heavy machines, fertilizers, coal mining, iron and steel, arms and ammunitions, ship building, aircraft building etc. If these industries are left in the hands of private sector, they can make them the tools of exploitation of masses and endanger the safety of the country.

**2. Check on economic powers:** In a capitalist economy, where the public sector is practically non-existent, the economic powers get concentrated gradually in the hands of private persons, causing an increase in the inequalities of income and wealth. The existence of public sector in a mixed economy acts as a deterrent for the tendency of concentration of wealth and economic powers in a few private hands. India is a social welfare state having a fundamental policy of reducing disparities of income and wealth and bringing about social equality for which public enterprises are essential.

**3. Balanced regional growth:** Public undertakings are also set-up to remove the regional imbalances in the economy. While some of the regions in India are highly developed, others are still backward. Private entrepreneurs do not take any interest in establishing industries in those backward regions. They are guided by profit motive, therefore, they set up their industries in those areas where the location and availability of other factors are favourable. The public undertakings are therefore set up in the backward

regions not only to exploit the local or regional resources but also to have balanced development of the country.

**4. Infrastructure:** Rapid industrialisation of a developing country like India depends upon the creation of infrastructure in terms of economic overheads, such as power, transportation, communication, irrigation, education, technical training etc. It was left to the Central Government to develop them and most of the public sector enterprises were set up in these industries. Public sector investment in the infrastructure sector has paved the way for both agricultural and industrial development of the country. Private sector investments also depend on such infrastructural facilities which are developed by the public sector of the country.

#### Answer 8.

(a) Central Bank controls the credit supply in the country. Credit control is the most important function of the 'Central Bank'. For the stabilised and smooth working of the economy of the country, it is very essential to regulate the credit granting capacity of the entire banking system and this task is assigned to the 'Central Bank' of the country.

The 'Central Bank' exercises qualitative as well as quantitative control on the credit-granting powers of the commercial banking system of the country. Some of the measures to control credit are as follows:

**(i) Cash Reserve Ratio (CRR):** All the commercial banks have to keep a certain ratio of cash reserves with the Central Bank. By increasing the cash reserve ratio, the excess reserve of the commercial bank is reduced which restricts the credit-granting capacity of the commercial bank. Similarly, a reduction in the cash reserve ratio increases the capacity of commercial banks to expand credits.

**(ii) Statutory Liquidity Ratio (SLR):** Under SLR, banks are required to keep a specified percentage of their demand and time deposits (in the form of liquid assets) that comprises of:

1. Cash
2. Gold
3. Government and other approved securities (whose payment is guaranteed by the government), etc.

RBI has all the capacity and authority to vary this ratio. When the Central Bank has to contract credit, it increases the SLR, which means larger minimum cash reserves is with the commercial banks and less is left for lending. On the contrary, when the Central Bank has to expand the credit,



it reduces the SLR. The banks now keep less cash reserves with them which raises their lending power.

Presently, RBI is maintaining it at the level of 21%.

- (b) Monopoly is that market structure which is characterized by a single producer of a commodity and where there are no close substitutes available for that commodity.

(i) When a monopolist firm is able to sell the same product or service to two different categories of consumers at different prices then it is known as price discrimination. Generally, a monopoly firm is able to practice price discrimination successfully when it caters two different customer segments, which can be separated on any characteristic like geography, age, price elasticity etc. For example, an electricity company sells the same electricity to domestic and commercial consumers at different prices.

(ii) Three features of a monopoly market are:

1. There is a single-seller or producer of a particular commodity. Thus, it may be called a single firm industry.
2. There are no close substitutes of the commodity. Thus, cross elasticity of demand for the commodity is almost zero.
3. The producer has substantial control over the price of the commodity. So, a monopolist firm is the price-maker.

#### Answer 9.

- (a) Privatization (alternately, “denationalization” or “disinvestment”) is the transfer of ownership from the public sector (government) to the private sector (business). The term “Privatization” also has been used to describe an unrelated, non-governmental interaction involving the buyout, by the majority owner, of all the shares of a public corporation or holding the company’s stock, privatizing a publicly-traded stock.

Privatization is favoured on account of the following arguments:

(i) **Greater flexibility in decision-making:** Usually the public sector suffers from red tapism in decision making whereas, the private sector leads to quick decision-making. Moreover, in general, the public sector does not enjoy sufficient autonomy as compared to the private sector. The decision-making in the private sector is very quick and flexible.

(ii) **Better utilisation of resources:** As the modern governments are wasting their precious resources on providing financial assistance to weaker public sectors units, it increases the financial burden on

the government in return. Hence, there is a move of privatization particularly that of loss-making units in India. After privatization, these companies can approach the capital markets in the country to raise additional resources for growth. In such conditions, there will be no need to depend on the budgetary allocations. So, the government is not required to provide roles to the public sector and can utilise its resources for more useful purposes.

(iii) **Greater employment opportunities:** Privatization opens new areas of greater investment which ultimately leads to greater employment opportunities and more income opportunities. As a matter of fact, higher investment would mean greater capital formation, expansion of employment and income opportunities in the economy.

#### (b) Difference between Central Bank and Commercial Bank

| Basis of Difference     | Central Bank                                                                                                                                                                            | Commercial Bank                                                                                                                                          |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Principal Objective     | The principal objective of the ‘Central Bank’ is to maximize economic welfare of the country.                                                                                           | The principal objective of ‘commercial banks’ is to earn profit. A bank earns this profit from the difference of rate of interest on deposits and loans. |
| Banker                  | The ‘Central Bank’ acts as a banker to all commercial banks. It takes deposits from commercial banks and provides loans to them at times of need. But it does not deal with the public. | The ‘commercial bank’ acts as a banker to all his customers. They deal directly with the public.                                                         |
| Right to Print Currency | The ‘Central Bank’ has a right to print currency on behalf of the government. The right to print notes is an exclusive right of the Central Bank.                                       | The ‘commercial banks’ do not possess such a right.                                                                                                      |

|                |                                                                                                                                                                              |                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Credit Control | To manage the supply of the currency in the economy is an exclusive responsibility of the Central Bank. For this purpose, various tools are available with the Central Bank. | The commercial banks do not have any such direct responsibility. It follows the instructions of the Central Bank in this regard. |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

|                                       |                                          |
|---------------------------------------|------------------------------------------|
| They are more susceptible to evasion. | 3. They are less susceptible to evasion. |
|---------------------------------------|------------------------------------------|

(iii) Classify the following into direct and indirect taxes.

|                      |                 |
|----------------------|-----------------|
| 1. Custom duty       | 1. Indirect Tax |
| 2. Professional tax  | 2. Direct Tax   |
| 3. Income tax        | 3. Direct Tax   |
| 4. Entertainment tax | 4. Indirect Tax |

(iv) Two reasons why indirect taxes are important in developing countries are:

1. **Productive and elastic:** By increasing the rate of taxes, the government in developing country can secure an adequate income from such taxes. The income from such taxes goes on increasing with the increase in population and production in the country.

2. **Wide coverage:** Indirect taxes can be imposed on a large variety of goods so that, most of the people contribute to the revenue of the government *i.e.*, the tax system gets broadened.

(v) 1. Indirect taxes are progressive when they are imposed on luxury goods which are consumed by the richer sections of the society. They generate economic resources which can be spent on necessities of the poor masses.

2. Indirect taxes do not remain equitable when they are imposed on necessities. They become regressive in nature. They affect the poor more than the rich man. For example, a commodity tax imposed on food ingredients will affect a poor family to a much greater degree than a rich family.

**Answer 10.**

(i) Indirect taxes are those taxes which are demanded from one person in the expectation and intention that he shall indemnify himself at the expense of another. In other words, indirect taxes are those taxes which are initially imposed on one person (seller) but ultimately the final burden has to be borne by another (consumer). Goods and services tax and customs duty are the examples of indirect tax.

(ii) **Difference between Direct Taxes and Indirect Taxes**

| Direct Taxes                                                                                                   | Indirect Taxes                                                                                                              |
|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| The tax is paid by the person, on whom it is imposed, <i>e.g.</i> , income tax, property tax, profit tax, etc. | 1. The tax is imposed on one person but the burden is borne by some other person, <i>e.g.</i> , excise duty, sales tax etc. |
| They promote civic consciousness.                                                                              | 2. They do not promote civic consciousness.                                                                                 |

GURUKUL

# ECONOMIC APPLICATIONS

# 2017

## QUESTIONS

### PART-A (40 Marks)

(Attempt **all** questions from this part)

#### Question 1.

- (a) Demand is inversely related to price. Explain. [2]
- (b) State two ways in which the government can promote economic development. [2]
- (c) What is meant by Joint demand? Give an example. [2]
- (d) Mention two adverse effects of mining on the environment. [2]
- (e) Draw and briefly explain a perfectly elastic supply curve. [2]

#### Question 2.

- (a) If the price of commodity increases by 50% and its supply increases by 25%, then calculate the price elasticity of supply following the percentage method. [2]
- (b) State any two factors which determine capital formation in a country. [2]
- (c) What is meant by regressive taxation? [2]
- (d) Define Monopoly. Give an example. [2]
- (e) What is meant by creeping inflation? [2]

#### Question 3.

- (a) Name the market in which there is a single buyer and many sellers. Give an example. [2]
- (b) How does a Central Bank act as a custodian of foreign exchange reserve? [2]
- (c) Define division of labour. Explain one benefit of division of labour. [2]
- (d) How does money act as a measure of value? [2]
- (e) What is meant by a demand deposit? [2]

#### Question 4.

State whether the following statements are true or false. Give reasons.

- (a) Inflation has a favourable effect on producers. [2]
- (b) In a perfectly competitive market producers are price makers. [2]
- (c) When change in demand is greater than the change in price, it is a case of inelastic demand. [2]
- (d) Savings is essential for capital formation. [2]
- (e) An increase in the rate of tax with an increase in income is called proportional tax. [2]

### PART-B (60 Marks)

(Attempt **any four** questions from this Part)

#### Question 5.

- (a) Define a Perfect market. Explain any four features of a Perfect market. [7]
- (b) (i) What do you understand by supply? How does it differ from stock? [8]
- (ii) What does the Law of Supply state? List two assumptions of this law.
- (iii) Explain two factors affecting supply other than price.

#### Question 6.

- (a) What is meant by urbanization? Explain four impacts of urbanization on the environment. [7]
- (b) With the help of appropriate diagram, explain the meaning of contraction in demand and extension in demand. [8]

#### Question 7.

- (a) Define land. State any three factors which determine the productivity of land. [7]
- (b) What is meant by a Commercial Bank? Explain how Commercial banks provide credit facilities through the methods given below: [8]
  - (i) Cash Credit
  - (ii) Loan
  - (iii) Overdraft facility

#### Question 8.

- (a) What is meant by monetary policy? Explain the following: [7]
  - (i) Bank rate policy
  - (ii) Open market operations
- (b) What is meant by product differentiation? To which market is it relevant? Explain three features of this market. [8]



#### Question 9.

- (a) Define money. Explain three contingent functions of money. [7]
- (b) What is meant by privatization? Explain briefly four problems of public sector undertakings in India. [8]

**Question 10.**

**Read the extract and answer the following:**

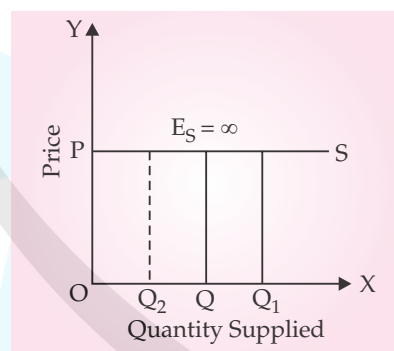
Labour refers to any physical and mental endeavour undertaken for the purpose of producing a good or a service. In India, in 2012 there were 487 million workers, the second largest after China. About 94% of Indian labour is involved in the unorganised sector comprising semi-skilled and unskilled workers ranging from push cart vendors to home based diamond and

gem polishing operators. The organised sector includes workers employed in the public sector and the private sector.

- (i) Explain any four special characteristics of labour. [6]
- (ii) With suitable examples explain three important classification of labour. [6]
- (iii) Define efficiency of labour. Briefly explain the impact of technology on efficiency of labour. [3]

**ANSWERS****PART-A****Answer 1.**

- (a) The law of demand states that as the price of a commodity rises, its quantity demanded falls and as the price of the commodity falls, its quantity demanded rises. So, there is an inverse relationship between price and quantity demanded of a commodity.
- (b) Following are the two ways in which the government can promote economic development:
  - 1. Promoting capital formation:** Capital is the life blood of all economic activities. Government plays a very crucial role in capital formation. It can develop appropriate monetary and fiscal policies to generate necessary resources for capital formation.
  - 2. Improvement in the standard of living:** Economic development can be done by raising the standard of living of the people through provision of transport facilities, basic amenities, public welfare programs etc.
- (c) Refer to ICSE Paper 2020, Answer 3 (e).
- (d) Two adverse effects of mining on the environment are:
  1. It causes deforestation and removal of vegetation. In order to construct a mine, large amount of land has to be cleared which results in the loss of flora and fauna.
  2. Mining also contaminate ground water because in the extraction of minerals, some toxins, such as-cyanide and mercury are used that can permanently toxicate water.
- (e) In the case where without any change in price, supply may change to any extent, then the supply is perfectly elastic. Here, the supply curve will be horizontal and parallel to  $x$ -axis. It is illustrated in the figure that PS is perfectly elastic supply curve. It is parallel to the  $x$ -axis. At price OP, supply may be  $OQ_1$  or  $OQ_2$ . Symbolically, it can be said that  $E_s = \infty$  or elasticity of supply is infinity.

**Answer 2.**

$$\begin{aligned}
 (a) \quad E_s &= \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}} \\
 &= \frac{25}{50} = 0.5 \\
 \therefore E_p &< 1
 \end{aligned}$$

Hence, it is the case of relatively inelastic supply.

- (b) **The two factors which determine capital formation in a country are:**

- 1. Volume of savings:** The accumulation of capital directly depends upon savings. Savings means income over consumption. This difference can be utilised for capital formation.
- 2. Facilities of investment:** When the people are provided with more facilities like banking facilities, post offices, stock market, etc., to mobilise their savings, the people save more and invest more. More savings lead to more capital formation.
- (c) Refer to ICSE Paper 2020, Answer 4 (a).
- (d) Monopoly is that market situation which is characterised by a single producer or seller, producing/selling a particular commodity, which have no close substitute. The producer have substantial control over the price of a commodity. E.g., Indian railway.
- (e) Creeping inflation is the inflation in which rate of increase in Price is very mild, i.e., 2-3 percent per annum. So, this is also known as mild inflation.



Such kind of inflation is considered helpful in the growth of the economy.

### Answer 3.

- (a) A market where there is a single buyer and many sellers is known as Monopsony. An example is Indian government which asks for tenders/bids from many constructors for building a road or a dam.
- (b) This is one of the most important functions of the Central Bank of a country. The Central Bank is actually a sole custodian of the gold and foreign currency reserves of the country, so that these reserves can be utilized for making payments to foreign countries. The inflow and outflow of foreign exchange depends upon whether the position of balance of payments is favourable or otherwise. In view of the balance of payment position, the Central Bank advises the government to take appropriate measures in respect of exports and imports so that the balance of payments may be favourable to the nation.
- (c) Specialization or division of labour means that every person or region specializes in production of one particular commodity or service in full or in parts. Following is the one of the advantage of division of labour:
- Increase in production:** With the specialization (division) of labour, the workers become more skilled and efficient. They acquire higher speed in work output, which ultimately results in more production, quantitatively as well as qualitatively. This directly enables the producers to earn greater amount of profit.
- (d) Money is accepted as a common measure of value or unit of account. Under the barter system, the price of a commodity was expressed in terms of the other commodity but after the evolution of money, the price of any commodity can be expressed in terms of money. So, money is also called the measure of value.
- (e) Demand deposits are the deposits which are withdrawable by cheque, ATM or online banking. Savings account deposits and current account deposits are included in the category of demand deposits.

### Answer 4.

- (a) True. During inflation, the producers and businessmen gain profit in the short-period. Usually the cost of production does not rise as fast as the price of their product in the first wave of inflation and so there is an artificial margin of additional profit.
- (b) False. In a perfectly competitive market, a firm is only a price taker and not a price maker. This happens because a perfectly competitive firm has got very insignificant share in the whole market

and sells a homogeneous product. So, it is not in the situation of influencing the market price and has to accept the market-forces determined price.

- (c) False. When percentage change in quantity demanded is greater than the percentage change in price, it is the case of relatively elastic demand.
- (d) True. Savings are very important for capital formation because capital formation takes place in three stages:

**1. Creation of savings:** It depends on (1) ability to save, (2) desire to save and (3) opportunity to save. Developed countries with high per capita income have higher saving power than the less developed countries.

**2. Mobilisation of savings:** This involves the mobilisation of the savings of various households and individuals for investment. This is mainly done by institutions like banks, insurance corporations and finance corporations.

**3. Investment of savings:** The savings of the people need to be invested by businessmen and entrepreneurs in different productive system like agriculture, industry, transport and communication, etc.

So without savings, capital formation cannot take place.

- (e) False. It is called progressive tax. It is the tax system in which the rate of tax increases, with the increase in income. Hence under this system, higher tax rate is applicable on the higher income slab.

## PART-B

### Answer 5.

- (a) A Perfectly Competitive Market or Perfect Competition is characterised by large number of buyers and a firms selling the homogeneous product. The number of firms and buyers is large enough so that no single firm or buyer can influence the price and, the products are so similar that the consumer has no reason to choose one for another. There is free entry and exit of firm in the industry. Perfectly competitive market is an ideal state of economic affairs which does not exist in any industry in totality but exists in similar form like stock market, wholesale markets for vegetable and grains, etc.

Four features of perfectly competitive market are given below:

**1. Large number of buyers and sellers:** There are many buyers and sellers each with a very insignificant share of the market. This means that each firm is too small, relative to the overall market to affect price by changing its own supply. So, a single firm's decision has no impact on market price. Each individual firm must accept the market price. So, each individual firm is

assumed to be a price taker. Similarly, each individual buyer is too insignificant to influence the market price by changing his/her quantity of demand. Thus, a policy of uniform price exists in the perfectly competitive market.

**2. Homogeneous product:** The market supplies homogeneous or standardised products that are perfect substitutes for each other. Consumers perceive the products to be identical. As a result, all the sellers have to sell their products at a uniform price. If any of the sellers tries to sell his product at a higher price, his product will be out of the market.

**3. Perfect knowledge of market:** Both the sellers and the buyers have perfect knowledge of market conditions, which includes demand, supply and prices. If some firms decide to charge a price higher than the ruling market price, there will be a large substitution effect away from this firm.

**4. Free entry and exit of firms:** There is no restriction upon the entry of a new firm in the market or the exit of an existing firm. This means that the market is open for competition with new suppliers. Due to this characteristic, all the firms can get only normal profit in long run.

- (b) (i) Supply means that quantity of a particular commodity, which a seller is ready to sell at a given price during a particular period of time. Like demand, supply is also affected at a particular price.

**Difference between Supply and Stock:**

The supply is different from stock. Stock is the total quantity of a particular commodity that is in the possession of a supplier in the market at a specific time whereas supply is that quantity of commodity which a seller is ready to sell in the market on a definite price at a definite time. Thus, stock is the amount of a produce stored up for future use. One must remember that supply and stock are the same for perishable goods like fruits, milk, etc. But for non-perishable commodities, stock is the potential supply.

(ii) The law of supply states that other things being constant, the quantity supplied of a commodity increases with the increase in its price and falls with the fall in its price. So, there is a positive relationship between the price of a commodity and its quantity supplied. Following are the two assumptions of this law:

1. The technology level remains constant.
2. There is no change in the prices of related goods.

(iii) The two factors which affect the supply of a commodity are given below:

**1. Prices of related commodities:** Prices of related goods generally affect the relative

profitability of a commodity, and thus, exercise their influence on its supply. Let us say that the prices of nylon, rayon and silk clothes have risen, while the prices of cotton clothes do not alter. Obviously in the new situation, the relative profitability of cotton clothes has declined and as a result of it, their supply will be reduced while that of nylon, rayon and silk clothes will increase.

**2. Prices of factors of production:** When prices of either of the inputs (factors) of production increase, the cost of product also increases which discourages the producers or suppliers to increase the supply. On the other hand, when there is a decrease in the prices of inputs, the final product becomes cheaper and margin of profit increases, which ultimately results in an increased supply of the commodity to the market.

**Answer 6.**

- (a) Urbanization refers to the general increase in urban population because of the movement of people from less industrialized region to more industrialized region in search of employment. This also leads to the expansion of urban facilities by engulfing surrounding land.

The effect of urbanization on the environment is immense. Some of the effects are given underneath:

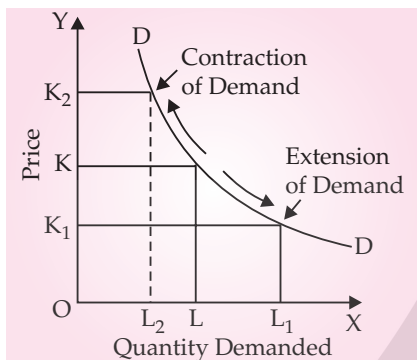
**1. Slums:** One of the worst problems of urbanization is unsystematic or unorganised growth of unhygienic slums around the industries and other areas. A slum is considered to be a residential area where houses are unfit to live due to poor surroundings, unclean environment, dilapidated houses and poor sanitation etc., which are detrimental for health. The person living in these slums are constantly exposed to all kinds of diseases because there is no ventilation, no drainage and no clean drinking water available.

**2. Pollution:** It has also led to deterioration in the quality of city environments. We can see that urban garbage has reached to alarming proportion and its disposal has become a problem for the urban authorities. Similarly air and water pollution has increased to a fatal stage.

**3. Destruction of natural habitat:** It also leads to deterioration of natural habitat like plants, forest areas, wetland, etc. In the recent news we have heard that many wild animals like lions, elephants and leopards have been found wondering in the colonies of different cities. This happened because the expansion of urban residential areas has reached to the jungles.

**4. Environmental degradation:** Urbanization creates many other problems such as environmental degradation and loss of agricultural land. Kedarnath devastation was the result of such environmental degradation.

- (b) When due to change in the price, the quantity demanded of a commodity gets changed and it is represented by different points on the same demand curve, it is called movement along the demand curve. It is also called extension or contraction in demand or change in quantity demanded.



It can be understood in the followings way:

The price variations play an important role in determining the extension and contraction of demand. The extension and contraction indicate the changes in the demand for a commodity when its price changes in the market, while other factors remain same. When a buyer purchases more quantity of an item because of reduction in its price, it is known as an extension of demand. Similarly, when less quantity of an item is being purchased due to a rise in price, it is termed as contraction of demand.

The above facts can be denoted graphically as:

The quantity demanded and the corresponding price is taken along X-axis and Y-axis respectively as shown in Fig. above. At price K, the quantity demanded is L. When the price falls to  $K_1$ , the quantity demanded increases and it is represented by  $L_1$ . This phenomenon is known (also denoted on graph along curve DD) as extension of demand. Similarly, the quantity demanded is  $L_2$  when price increases to  $K_2$  and the contraction of demand occurs.

#### Answer 7.

- (a) For a layman, the term 'Land' generally refers to the surface of the land. But in economics, it includes all that which is available free of cost from 'nature' as a gift to the human being. "Land means the materials and the forces, which 'nature' gives for man's aid—in land and water, in air and light and heat." —Marshall  
The factors affecting the productivity of land are discussed below:  
Refer to ICSE Paper 2020, Answer 8 (b).
- (b) Commercial bank is an institution, which deals in money, i.e., borrowing and lending of money. The lending rate of interest is more than the borrowing rate of interest and the difference is the profit of

a commercial bank. The deposits are accepted from people. The money so collected is provided in the form of short-term and long-term loans to customers, i.e., industry, trade and general public. Banks adopt following methods and procedures to lend money:

(i) **Cash credit:** In cash credit, the bank advances a 'cash loan' up to a specified limit to the customer against a bond or other security. A borrower is required to open a current account and bank allows the borrower to withdraw up to the full amount of the loan. The interest is charged only on the amount actually utilized by the borrower and not on the loan sanctioned.

(ii) **Loan:** A loan is a specified amount sanctioned to the credit of a borrower for a fixed period. Invariably, a loan is granted against some kind of security of assets or personal security of the borrower and the interest is charged on the full amount sanctioned as loan, irrespective of the fact whether full amount or part of it has been used. In case of loans, the borrower is provided with the facility to repay the loan in installments or as a lump-sum.

(iii) **Overdraft facility:** The overdraft facility is allowed to the depositor maintaining a current account with the bank. According to this facility, a borrower is allowed to withdraw more amount than what is there in the current account. The excess amount so withdrawn has to be repaid to the bank with interest. However, the overdraft facility is given only against the security of some assets or on the personal security of the customer.

#### Answer 8.

- (a) Monetary policy is the policy of the government with regard to monetary matters. Such a policy involves influencing the aggregate supply of money in circulation or rate of interest. Such policies are designed and adopted to ensure that entire economic system should remain stable and operate efficiently. Various measures to achieve this objective involve deliberate and calculated manipulation of bank rate, open market operations, variations in reserve requirements and credit controls.
- (i) **Bank rate policy:** The bank rate is defined as "the rate, at which the Central Bank is ready to extend loans or re-discount the first-class securities and bills produced before it by the commercial banks." The changes in bank rate affect the changes in all local market interest rates. As a result, these changes affects the supply and demand of the money in the market. When the market rates and lending rates are higher, the borrowing is decreased and the credit becomes costly and there is a contraction of credits. Similarly, when the market rates are lower, the



borrowing is increased and the credit becomes cheap and expansion of credit takes place. Thus, overall credit control can be manipulated by Central Bank by changing the bank rate.

**(ii) Open market operations:** This refers to the purchase or sale of government securities, in an open market by the Central Bank. It is the direct method of credit control but it is more effective where big and active market exists for purchase and sale of government securities for short as well as for long periods, like in U.S.A. and U.K.

In the open market operations, when the Central Bank sells the securities, the money supply in the market is reduced and credit granting capacity also decreases. On the other hand, when the Central Bank purchases the securities from the open market, the money supply to the market increases and credit-granting (lending) position improves.

- (b)** Product differentiation refers to the endeavor of a business organisation to give a distinct image to its product by adding different features (actual or perceived) which separates its product from the products of other market participants.

Product differentiation is a characteristic of monopolistic competition in which there are large numbers of buyers and sellers selling differentiated products and the products have close substitutes of each other.

Restaurant industry is a good example of monopolistic competition. It contains a large number of firms selling differentiated products (Same dish of two firms will not taste same) which are the close substitute for each other.

Three features of monopolistically competitive market are given below:

**1. Large number of buyers and sellers:** A monopolistically competitive industry contains a large number of firms, each of which is relatively small as compared to the overall size of the market. This ensures that all firms are relatively competitive. In particular, each firm has hundreds of potential competitors.

**2. Free entry and exit:** Monopolistically competitive firms are relatively free to enter and exit the market.

**3. Price maker:** Under monopolistic competition, every firm is a price maker because every firm sells differentiated products and this gives a kind of right to every firm to determine the price of its product.

#### Answer 9.

- (a)** Money is anything which is generally acceptable as a medium of exchange and at the same time acts as the measure and store of value and standard of deferred payments.

Various definitions of money are as follows:

"Anything which is widely accepted in payments for goods, or in discharge of other kinds of business obligations."

—Robertson

"Anything which is commonly used and generally accepted as a medium of exchange or as a standard of value."

—Dr. Kent

The three contingent functions are as below:

**1. Remunerating factor inputs:** Money serve as the basis for payment of different factors of production like land, labour, capital and entrepreneur.

**2. Credit system:** Money has facilitated the application of credit system in the economy. In modern economy, various commercial and business transactions takes place on credit. It is the money which provides the basis of entire credit system. Without the existence of money, important credit instruments like cheques, bills of exchange, etc., cannot be used.

**3. Distribution of national income:** Distribution of national income among the various factors of production can be easily made with the use of money. Various factors of production help in the process of production. Thus, production is the outcome of the contribution of the numerous units of these various factors. Without the use of money, the distribution of national income among these factors of production would have become impossible.

- (b)** In simple words, privatization refers to the process of transferring more managerial powers of the government enterprises and assets in the hands of private entrepreneurs.

Some definitions of privatization are given below:

"The transfer of a majority ownership of state owned enterprises to the private sector by the sale of ongoing concern or assets following liquidation."

—Kikeri, Nellis and Shirley

"Refers to the sale of all or parts of a government's equity in state owned enterprises to the private sector."

—Ramamurti

"The divestiture by the state of enterprises, land or other assets."

—World Bank

"The introduction of market forces into an economy in order to make enterprises work on a more commercial basis."

—Hartley and Parker

Following are the four problems of public undertakings in India:

**1. Lack of clear cut objectives:** Public undertakings are required to fulfill a large number of objectives, economic as well as non-economic, which may be conflicting with each other. The objectives are not made clear and often there is a lack of policy clarification on various matters.

**2. Labour problems:** Public undertakings in general face the shortage of skilled, experienced



and competent workers because of relatively lower salary and perquisites, etc. This has led to the inefficient management of these enterprises.

**3. Political interference:** Theoretically, public undertakings are provided autonomy in their working. In practice, the government, the ministers, the politicians and other government agencies constantly interfere in their day-to-day activities. This results in inefficient functioning and poor performance of the enterprises.

**4. Lack of direct incentive:** The management of these enterprises, even if they are competent enough, does not show keen interest in their efficient working as they do not have any incentive or financial stake. Moreover, unlike private enterprises, they do not feel insecure about their jobs also. So, neither they have incentive of reward nor fear of losing their jobs.

#### Answer 10.

- (i) The following are the four important characteristics of labour:

**1. The labourer (worker) and his labour are inseparable:** The efforts of a worker cannot be separated from him. A labourer's work has to be delivered in person. But this is not the case with other factors of production. For example, a farmer has to be present in the field to plough the field, but the owner of the field does not need to be present at the time of the cultivation unless and until he himself is the farmer. Hence, it can be said that a labourer has to carry his labour power with him.

**2. The labourer sells only his services (labour):** A labourer (worker) sells his services only and not himself. When a worker sells his services (labour), he himself remains quite independent and retains his identity. A labourer may or may not agree to do a work. The 'labour' factor comes into consideration when he agrees to offer his services on certain terms and conditions.

**3. Labour is highly perishable:** If a labourer does not work for a day, his labour for that day will be lost forever. The energy of the labourer cannot be stored to be used later.

**4. Labour has a weaker bargaining power:** As compared to employer, bargaining power of the worker is low. Firstly, labour is perishable. The worker has to accept the low wages offered by the employer rather than go without work. Secondly, the economic position of the employer is stronger than that of the worker because he has money power and the power to hire many units of labour while a labourer has only one unit of labour, which is, his own self. Thirdly, due to illiteracy and other reasons, the workers are unorganised.

- (ii) Labour can be classified under the following heads:

**1. Physical and mental labour:** When a work requires physical efforts or is of such nature which requires great movements of body parts in order to be completed, the labour used in such work is known as a physical labour. For example, sports, farming, work in factory, etc., denote physical labour. On the other hand, if a work needs more of the mental efforts in order for the work to be completed, the labour used in such work is known as mental labour. Examples of such labour are work of a teacher, doctor, chartered accountant, politician, etc.

**2. Skilled and unskilled labour:** Skilled labour requires a segment of work force with special knowledge, training and experience to complete a task. Such kinds of tasks are of complex or technical nature. For example, the labour to perform the work of an engineer, teacher, doctor and a company secretary, etc., is called a skilled labour. While a work which is not complex or technical and in which, work force with special knowledge, training or experience is not required, is known as unskilled labour. For example, the work of a rickshaw puller, house maid and worker employed in NREGA are called unskilled labour.

**3. Productive and unproductive labour:** Productive labour is that labour which adds some value to the product or service. While unproductive labour is the one which does not add any value to the product or service. If the marginal product of a labour is more than zero, then such kind of labour is called productive while a unit of labour whose marginal product is zero or less, is called as unproductive labour.

- (iii) The productive capacity of a worker is termed as 'efficiency of labour'. In simple words, efficiency of the labour refers to the quality and quantity of goods and services, which can be produced by a labourer during a given period under certain prevailing conditions.

Technology has a great impact on the efficiency of labour. By using better round about production methods, more output can be produced. Better technology improves the actions and movements of the labour, makes them more precise and reduces wastage. So the net impact is the improved output. We can take an example of agriculture, where introduction of better technology in terms of machine, better seeds and irrigation facilities has improved the productivity of the farmers. Similar examples can be taken in the construction industry where technology has improved the efficiency of workers and mega structures have become possible.

# ECONOMIC APPLICATIONS

# 2016

## QUESTIONS

### PART-A (40 Marks)

(Attempt **all** questions from this Part)

#### Question 1.

- (a) What is meant by labour in economics? [2]
- (b) Construct an imaginary individual supply schedule. [2]
- (c) What are complementary goods? Explain its impact on demand. [2]
- (d) State two qualities of a successful entrepreneur. [2]
- (e) Explain any one disadvantage of division of labour. [2]

#### Question 2.

- (a) What do you understand by bank rate? [2]
- (b) Classify the following into fixed and working capital. Give reasons: [2]
  - (i) A television set in a hotel room.
  - (ii) Iron-ore in a steel plant.
- (c) Identify the market forms for the items given below : [2]
  - (i) A single seller
  - (ii) Homogeneous goods
  - (iii) Product Differentiation
  - (iv) A single buyer
- (d) Define Real Capital. Give two examples. [2]
- (e) When is the demand for a good said to be perfectly inelastic? [2]

#### Question 3.

- (a) Briefly explain why direct taxes foster civic consciousness among people. [2]
- (b) What is the impact of division of labour on cost of production? [2]
- (c) The price of a commodity rises from ₹ 20.00 to ₹ 40.00. Consequently its supply increases from 100 units to 400 units. Calculate the price elasticity of supply. [2]
- (d) State two agency functions of a Commercial bank. [2]
- (e) Give two reasons in favour of privatization of Public Sector Enterprises. [2]

#### Question 4.

State whether the following statements are true or false. Give one reason for your answer.

- (a) Construction of dams can have negative impacts on the eco-system. [2]
- (b) The demand for inferior goods rises when the income of a consumer increases. [2]

- (c) A monopolist can sell the same product at different prices to different customers. [2]
- (d) During inflation the debtors gain and creditors lose. [2]
- (e) Labour is the beginning and end of production. [2]

### PART-B (60 Marks)

Attempt **any four** questions from this Part.

#### Question 5.

- (a) What is demand? Explain how quantity demanded of a commodity X will be affected by: [7]
  - (i) An increase in the price of its substitutes.
  - (ii) Consumer credit facility.
  - (iii) Government policy.
- (b) What do you understand by efficiency of labour? Discuss any two causes of low efficiency of labour and suggest one measure to improve it. [8]

#### Question 6.

- (a) With reference to land as a factor of production: [7]
  - (i) Why is it considered a 'passive' and an 'indestructible' factor of production?
  - (ii) Mention two ways in which land is different from capital.
  - (iii) Discuss two important functions of land.
- (b) What is meant by an indirect tax? Give two examples. Explain briefly two merits and two demerits of indirect tax. [8]

#### Question 7.

- (a) Define Ecosystem. Explain any two impacts of each of the following on the ecosystem: [7]
  - (i) Industrialization
  - (ii) Automobiles
  - (iii) Dwelling houses.
- (b) (i) Define a monopolistically competitive market. Give two examples of this market structure. [8]  
(ii) Explain two important features of this type of market. State one similarity and one difference between monopolistic competition and perfect competition.

#### Question 8.

- (a) Define money. Explain how money can: [7]
  - (i) Overcome the difficulties of double coincidence of wants.
  - (ii) Act as a store of value
  - (iii) Help producers employ various factors of production.

- (b) Explain clearly four ways by which the State can promote economic growth and development. [8]

**Question 9.**

- (a) (i) What is the impact of the behaviour of cost of production on elasticity of supply? [7]  
 (ii) Draw and explain the following degrees of elasticity of supply:  
 (1)  $E_p = \alpha$  (2)  $E_p = 0$  (3)  $E_p > 1$   
 (b) What are Commercial Banks? Explain clearly three methods adopted by Commercial Banks to borrow money from the public. [8]

**Question 10.**

- (a) Read the extract given below and answer the questions that follow: [7]

Aug. 17, 2015

Mumbai: Bankers today said, the sharp fall in inflation to 3.78% for July has raised hopes of another rate cut by RBI at September review of the policy.

“Obviously, if more and more, find more positive news on inflation front comes, it’s a reasonable expectation to expect that rates will be cut at the September policy”, reported Mr. Aditya Puri, the Managing Director of HDFC Bank. He said, the Governor of RBI, Mr. Raghuram Rajan had earlier said that RBI is actively looking at rate cut.

- (i) Name the policy implemented by RBI to control and regulate money supply.  
 (ii) Define creeping inflation. What is its impact on the economy?  
 (iii) Explain how the following measures are adopted by RBI to control inflation:  
 (1) Change in Reserve Ratio  
 (2) Credit Rationing.  
 (b) Explain four ways by which an entrepreneur can promote economic development. [8]

## ANSWERS

### PART-A

**Answer 1.**

- (a) Refer to ICSE Paper, 2020, Answer 2 (b).  
 (b) **Hypothetical Individual Supply Schedule**

| Price per unit of X (₹) | Quantity Supplied of X per month (units) |
|-------------------------|------------------------------------------|
| 2                       | 20                                       |
| 3                       | 40                                       |
| 4                       | 60                                       |
| 5                       | 80                                       |
| 6                       | 100                                      |

- (c) Complementary goods are those goods which, are jointly demanded to satisfy a particular want e.g., pen and ink, car and petrol, etc.  
 In such cases, there is an inverse relationship between the price of one commodity and the quantity demanded for the other. For example, if price of petrol goes up, demand for cars will go down.  
 (d) The two qualities of a successful entrepreneur are:  
 1. He/she should be capable of taking quick decisions because delay in taking decisions can sometimes cause heavy losses.  
 2. He/she should have complete knowledge about his/her business.  
 (e) The disadvantage of division of labour is:  
**Monotony of work:** Under the division of labour, a worker has to do the same job again and again for the years. Therefore, after sometime, the worker

feels bored or the work becomes dull for him. This boredom and monotony create mental fatigue, which has adverse effects on the production and spoils the quality of work.

**Answer 2.**

- (a) The bank rate is the rate at which a Central Bank of a nation lends money to member commercial banks against approved securities. The bank rate policy is a traditional method of credit control used by a Central Bank.  
 (b) (i) A television set in a hotel room is fixed capital because this type of capital is used again and again.  
 (ii) Iron ore in a steel plant is a working capital because this will be used in production, only once.  
 (c) (i) Monopoly market  
 (ii) Perfect market  
 (iii) Monopolistic market  
 (iv) Monopsony.  
 (d) Real capital refers to the physical stock of goods which are used as inputs in the production process. Examples: machines, raw materials, etc.  
 (e) The demand for a good is said to be perfectly inelastic when the quantity demanded for a good does not change in response to any change in the price of that good.

**Answer 3.**

- (a) Direct taxes create a spirit of civic responsibility amongst the tax payers. Since, the tax payers provide the funds from their own pockets to the government, so they take keen interest in seeing that these funds are properly utilized.



- (b) Division of labour encourages production on a large scale. Consequently, many economies or benefits of large scale begin to emerge which thereby reduce the cost of production. Saving of capital tools and machinery, etc., also helps in reduction of cost of production.

$$(c) \quad e_s = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

Here,  $\Delta Q = 400 - 100 = 300$   
 $\Delta P = 40.00 - 20.00 = 20.00$   
 $Q = 100$   
 $P = 20.00$

$$\therefore e_s = \frac{300}{20} \times \frac{20}{100} = 3$$

- (d) Commercial banks perform certain agency functions for and behalf of their customers:

**1. Collection and making payments for credit instruments:** Banks collect or make payments on behalf of their customers such as insurance premium, pensions, dividends, interests, etc.

**2. Purchase and sale of securities:** Banks undertake purchase and sale of various securities like shares, stocks, bonds, debentures, etc., on behalf of their customers.

- (e) Two reasons in favour of privatization of public sector enterprises are:

**1. Poor performance of public enterprises :** In view of the poor performance of public sector undertakings, public sector has become an economic burden on the national economy. Thus, its efficiency can be removed if these enterprises are privatised.

**2. Rising budgetary deficits:** The budgetary deficits in India are increasing considerably, which further contribute to rising prices. To reduce budgetary deficits, the scope of public sector should be contracted and that of private sector be expanded.

#### Answer 4.

- (a) **True:** Constructing dams result in erosion of more and more river channels and land on both sides of various rivers.
- (b) **False:** Inferior goods are those goods, the demand for which falls as income of the consumer increases. For example, a consumer may buy toned milk, when his/her income is less, because he/she cannot afford to purchase a better quality milk.
- (c) **True:** A monopolist can influence the market price by varying its supply. The firm here, has to charge the price according to what consumers or buyers are willing to pay, so a monopolist can sell

the same product at different price to different customer.

- (d) **True:** When price rises, the value of money (*i.e.*, purchasing power of money) falls. The debtors gain because they now have to pay less in terms of goods and services. On the other hand, creditors stand to lose. Although they get back the same amount of money, which they lent, but they get less in terms of goods and services.

- (e) **True:** The presence of land and capital alone cannot make production. Production can be started only with the help of labour. It means labour is the beginning of production. Goods are produced to satisfy human wants. When we consume them, production comes to an end. Therefore, labour is both the beginning and the end of production.

### PART-B

#### Answer 5.

- (a) Demand means the quantity of a commodity or service that a consumer is willing to buy at a given price and at a given time.

(i) Substitute goods are those goods which can be used in place of one another, *e.g.*, tea and coffee, coke and pepsi. An increase in the price of commodity X will raise the demand of substitutes commodity Y.

(ii) If credit facility is provided at low rates of interest by the banks, or sellers of the commodity, households would be encouraged to buy more than what they would buy in their absence.

(iii) Government policy of a country can also affect the demand for a particular commodity or commodities. It may reduce the demand for a commodity by imposing tax on it or increase the demand by lowering its price through subsidies.

- (b) By efficiency of labour, we mean productive capacity of a worker. Thus, other things remaining the same, if a worker produces more than other workers, he will be called more efficient.

#### Causes of low efficiency of labour:

**1. Low wages:** The wages of labourers in general are low and so is their standard of living. Workers are poorly fed and ill-clothed. As such, the workers are not in a position to keep themselves physically and mentally fit. This in turn affects their efficiency.

**2. Poor technology:** The machines are either outdated or of poor standard. Besides, frequent breakdown of machines and electricity causes the downfall in the efficiency of workers.

**Suggestion to improve efficiency of labour :** The payment of wages should be fair and prompt.



Bonus must be given to workers as an incentive for their hard work.

#### Answer 6.

- (a) (i) Land is a passive factor of production because it cannot produce anything by itself. It requires services of labour and capital.

Land is indestructible and it cannot go out of existence. A labourer will die one day, a machine can get depreciates but land can never be destroyed.

#### (ii) Land is different from capital:

1. Land is a free gift of nature but capital is man-made.
2. Land is fixed and limited in supply, while the supply of capital can be increased or decreased.

#### (iii) Functions of land are:

1. Land is the basis for many life support systems, through the production of biomass that provides food, fibre, fuel and other biotic materials for human use.
2. Land provides the physical basis for human settlements, industrial plants and other social activities.

- (b) Indirect tax refers to that tax which is imposed on one person but is paid partly or wholly by another. The impact and burden of indirect taxes are on different persons.

**Examples:** Custom duty, Excise duty.

#### Merits of indirect tax:

1. **Convenient:** Indirect taxes are more convenient than direct taxes. They are paid in small amounts and that too at intervals instead of in lump sum.
2. **Wide coverage:** The main merit of indirect taxes is that it touches all income groups and can be imposed on a large variety of goods, so that most of the persons contribute something to the revenue of the government.

#### Demerits of indirect tax:

1. **Regressive:** Indirect taxes are regressive in nature and hence unjust. They fall on all persons indiscriminately. The poor feel relatively more burdened. Hence, these taxes are unjust and inequitable.
2. **No civic consciousness:** Indirect taxes do not create civic consciousness among the tax payers because they are imposed on commodities and hence the tax payers do not feel at all that they are paying the tax.

#### Answer 7.

- (a) Ecosystem consists of plants, animals and other living things which exist and survive together while adjusting to their physical environment.

In an ecosystem, living organisms or things interact with each other and with their physical environment.

#### (i) Impacts of industrialization on the ecosystem:

1. It causes noise, air and water pollution, which results in many health problems among people.
2. Accumulation of wastes through industrial practices is one of the major reason of environmental problem.

#### (ii) Impact of automobiles on the ecosystem:

1. Automobiles are a major source of air and noise pollution.
2. Vehicles contain many fluids like motor oil, gasoline, etc., which are toxic to humans and animals, and can pollute waterways if they leak from a vehicle or are disposed off incorrectly.

#### (iii) Impact of dwelling houses on the ecosystem:

1. Clearing of forest land and fertile agricultural land for housing causes loss of biological diversity forever.
2. Due to extensive construction, the local ground water recharging has declined and the cities have to draw water from other sources.

- (b) (i) Monopolistically competitive market is a market situation where there is a large number of buyers and sellers selling closely related goods but surely not homogeneous.

**Example:** Toothpastes in the market, such as Colgate, Close-up, Pepsodent, etc.

Different variety of soaps like Hamam, Rexona, Lifebuoy, Lux etc.

#### (ii) Features:

1. **A large number of sellers and buyers:** In monopolistic competition, the number of sellers is sufficiently large but not as large as under perfect competition. The sellers are not mutually dependent upon one another, each of them act independently.
2. **Product differentiation:** In such market, products of various firms are similar in nature but are differentiated in terms of brand name, shape and size, colour, quality, type of service, etc. Products are very similar to each other but not identical.

#### Similarity between monopolistic competition and perfect competition:

In both perfect and monopolistic market, there are large number of sellers and buyers. Each firm produces a small share of total industry output.

**Difference between monopolistic competition and perfect competition:** Every firm is a price

taker in perfect competition but in monopolistic competition each firm is a price maker due to product differentiation.

#### Answer 8.

- (a) "Anything that is generally acceptable as a means of exchange and at the same time acts as measure and store of value is money."

(i) **Overcome the difficulties of double coincidence of wants:** Money is normally accepted as a medium through which all the sales and purchases take place. As a common medium of exchange, money has also eliminated the difficulties of barter system such as double coincidence of wants.

(ii) **Acts as a store of value:** Money acts as a store of value. People can store their wealth in the form of money. In barter system, it was not always possible to store the wealth, especially the perishable commodities. But money is considered as a better storage of value because it is a perfectly liquid asset *i.e.*, it is readily accepted as means of payment.

(iii) **Help producers to employ various factors of production:** Money helps the producers in deciding how many units of a factor of production be employed. Every producer wants profit maximization while employing factors of production. Profits can be maximized by equaling marginal productivity of factors of production with their price expressed in terms of money.

- (b) The state can play an important role to promote economic growth and development in the following ways:

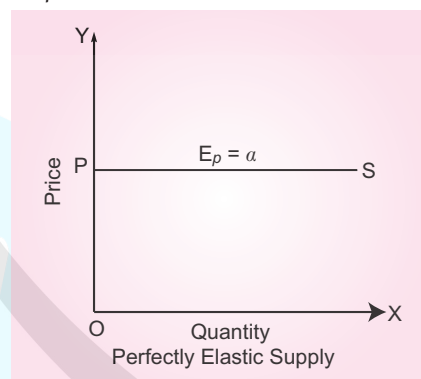
1. The state can make laws to regulate both public and private sectors in order to promote social goals as fixed by the directive principles embodied in our constitution.
2. Capital formation is a fundamental requirement for economic development. Government can use fiscal and monetary policies to generate resources for capital formation.
3. The state can also provide various inputs at subsidized prices to encourage those industries which it wants to encourage in order to bring about social justice.
4. The state can provide relief to certain industries in the shape of lowering the taxes so that they could compete with foreign industries.

#### Answer 9.

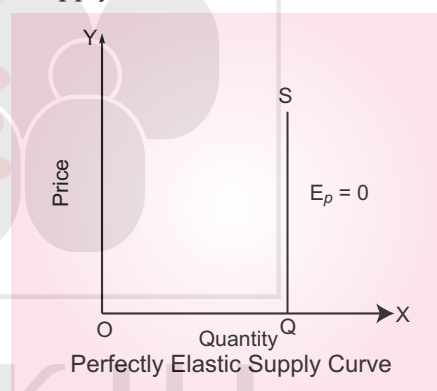
- (a) (i) Elasticity of supply is greatly influenced by, how costs of production respond to output changes. If an increase in output by the firms in an industry causes only a slight increase in their

cost per unit or leads to decrease in cost per unit, supply will be fairly elastic. If, on the other hand, an increase in supply leads to a large increase in cost of production, the supply would be relatively inelastic.

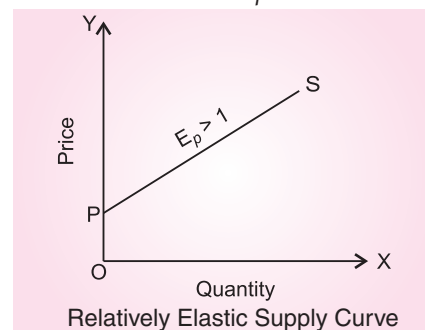
(ii) 1. When at a particular level of price, sellers are willing to supply infinite amounts of commodity but nothing will be supplied even at a marginally reduced price. It is the case of perfectly elastic supply ( $E_p = \alpha$ ).



2. When the quantity supplied does not change with the change in price. It is known as perfectly inelastic supply or zero elasticity of supply ( $E_p = 0$ ). This type of perfectly inelastic supply happens in a very short period. During this period, supply remains fixed at all levels of price.



3. When the proportionate change in quantity supplied is more than the proportionate change in the price, it is said to be relatively elastic supply or more than unit elastic ( $E_p > 1$ ).



- (b) Commercial banks are those institutions which perform all kinds of banking functions related to money such as accepting deposits, advancing loans, credit creation, financing trade and commerce.

**A commercial bank borrows money from the public through these methods:**

**1. Demand deposits:** Deposits in the current account are known as demand deposits. Because these deposits are repayable on demand, the depositor can deposit or withdraw money at any time by means of cheques. The bank does not pay any interest on demand deposits. These deposits are generally made by businessmen and industrialists.

**2. Savings deposits:** These are those deposits on which the bank pays a certain percentage of interest to the depositors but places certain restrictions on their withdrawal. Savings deposits accounts are generally held by households who have idle or surplus money for a short period.

**3. Fixed deposits:** In the fixed deposit account, money is kept for a specified period. These deposits are also known as time deposits or term deposits. Money deposited in the fixed deposits cannot be withdrawn before the expiry of the period. A higher rate of interest is paid on such deposits.

**Answer 10.**

- (a) (i) Bank Rate

(ii) When the rise in prices is very slow like that of a snail or creeper, it is called creeping inflation, for example—prices rise about 2 per cent annually. Creeping inflation is regarded safe and essential for economic growth because it keeps the economy away from stagnation. But some economists

regard creeping inflation as dangerous for the economy. According to them, in the beginning creeping inflation may look simple, but as time passes, it may assume alarming proportions.

(iii) 1. All commercial banks are required under the law to keep with RBI a minimum percentage or proportion of their net demand and time deposits as cash reserve. RBI does not pay interest on funds on these deposits. When credit is to be contracted, RBI increases this ratio and contrary to it, when RBI intends to expand credit, it reduces this ratio.

2. Rationing of credit is another method of controlling inflation by RBI. Under this programme, RBI fixes credit quota for member banks. If the member banks seek more loans than their fixed quota, they will have to pay higher interest.

- (b) Entrepreneur can promote economic development in the following ways:

1. Entrepreneurs mobilize idle savings of the public through the issues of shares and debentures. Investment of these public savings in industry results in capital formation which is regarded crucial for economic development.

2. Entrepreneurs generate employment opportunities and thus, help to reduce unemployment problem in the country.

3. Entrepreneurs set up industries in the backward areas of the countries to avail various concessions and subsidies provided by the government.

4. Entrepreneurs also help the nation reducing dependence on foreign countries. This could happen when they produce indigenous substitutes of imported goods.



GURUKUL

## QUESTIONS

**(Two Hours)**

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper. The time given at the head of this Paper is the time allowed for writing the answers.

Attempt **all** questions from **Section A** and **any four** questions from **Section B**.

The intended marks for questions or parts of questions are given in brackets [ ].

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

Distinguish between :

- (a) Advertising and Publicity. [2]
- (b) Capital and Revenue expenditure. [2]
- (c) Equity shares and Preference shares. [2]
- (d) Internal and External Stakeholders. [2]
- (e) Central Bank and Commercial Bank. [2]

#### Question 2.

- (a) What is E-tailing ? [2]
- (b) What are Fixed Costs ? [2]
- (c) What is a Budget ? [2]
- (d) Briefly explain Provident Fund. [2]
- (e) State two advantages of internal recruitment. [2]

#### Question 3.

- (a) State two advantages of Campus Recruitment as an external source of recruitment. [2]
- (b) What do you mean by E-security ? [2]
- (c) What is meant by Industrial Relations ? [2]
- (d) Briefly explain the principle of Utmost good faith of insurance. [2]
- (e) 'The Central Bank is a banker's bank.' Explain in brief. [2]

#### Question 4.

- (a) Briefly explain any two types of Selection tests. [2]
- (b) What are Bonded Warehouses ? [2]
- (c) What do you mean by Insurance ? [2]
- (d) State any two features of the Consumer Protection Act. [2]
- (e) Explain in brief Credit Card Fraud. [2]

### SECTION-B (40 Marks)

Attempt **any four** questions from this Section.

#### Question 5

- (a) Explain any five objectives of Marketing. [5]
- (b) What is ERP ? Explain any three modules of the ERP System. [5]

#### Question 6.

- (a) State any five expectations of employees from a business organisation. [5]
- (b) Describe any five utilities of a budget. [5]

#### Question 7.

- (a) Explain any five merits of road transport. [5]
- (b) Explain : [5]
  - (i) ATM
  - (ii) Debentures

#### Question 8.

- (a) Explain any five features of the Environment Protection Act. [5]
- (b) Briefly, explain any five benefits of advertising to producers. [5]

#### Question 9.

- (a) What are the various ways by which consumers are exploited ? [5]
- (b) Explain : [5]
  - (i) NEFT
  - (ii) RTGS

#### Question 10.

The following is the Trial Balance of A.B. Chandra as on 31st December 2019. [10]

**Trial Balance of A.B. Chandra  
as on 31.12.2019**

| Particulars              | Amount (Dr.) | Particulars       | Amount (Cr.) |
|--------------------------|--------------|-------------------|--------------|
| Cash in Hand             | 2,000        | Discount Received | 750          |
| Drawings                 | 2,800        | Capital           | 40,000       |
| Opening Stock (1-1-2018) | 4,000        | Purchases Returns | 1,250        |
| Wages                    | 2,000        | Sales             | 83,000       |
| Cash at Bank             | 3,500        | Creditors         | 15,000       |
| Insurance                | 700          | Bank Loan         | 10,000       |
| Trade Expenses           | 1,200        |                   |              |
| Furniture                | 20,000       |                   |              |
| Buildings                | 61,000       |                   |              |



|                   |        |  |  |                  |          |  |          |
|-------------------|--------|--|--|------------------|----------|--|----------|
| Salaries          | 5,000  |  |  | Bills Receivable | 1,800    |  |          |
| Discount Allowed  | 750    |  |  | Total            | 1,50,000 |  | 1,50,000 |
| Sales Returns     | 3,000  |  |  |                  |          |  |          |
| Purchases         | 31,250 |  |  |                  |          |  |          |
| Debtors           | 10,000 |  |  |                  |          |  |          |
| Telephone Charges | 1,000  |  |  |                  |          |  |          |

The closing stock was valued at ₹ 12,000.

You are required to prepare a Trading Account and a Profit and Loss Account for the year ending 31<sup>st</sup> December, 2019 and a Balance Sheet as on 31<sup>st</sup> December, 2019.

## ANSWERS

### SECTION-A

#### Answer 1.

(a)

| S. No. | Basis of Distinction       | Advertising                                                                                                   | Publicity                                                                                                                             |
|--------|----------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Nature of Communication    | Communication of only commercial information to the public.                                                   | Publicity may or may not be related with the communication of commercial information.                                                 |
| 2.     | Decisions Regarding Format | The content, style, format, etc. of the advertising message are decided by the sponsor, i.e., the advertiser. | The content, style, and other matters, such as space and timings of dissemination of the message, are controlled by the media owners. |

(b)

| S. No. | Basis of Distinction | Capital Expenditure                                                                                                                                 | Revenue Expenditure                                                                   |
|--------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1.     | Purpose              | This expenditure is incurred in acquiring a fixed asset or improving the capacity of an existing one, resulting in the extension of its life years. | This expenditure is incurred for maintaining day to day activities of the business.   |
| 2.     | Effect               | The effect is long term. The benefits are availed over many accounting periods.                                                                     | The effect is temporary and the benefits are derived during one accounting year only. |

(c)

| S. No. | Basis of Distinction | Equity Shares                                                                                                       | Preference Shares                                                                                                                                                                                |
|--------|----------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Meaning              | Equity shares, commonly referred to as ordinary shares, represents the form of fractional ownership in the company. | Preference shares are those shares which carry a preferential right over equity shares in the case of distribution of dividend and repayment of capital in the event of winding up of a company. |
| 2.     | Voting Right         | The holders of such shares are the members of the company and have voting rights.                                   | Preference shareholders do not have voting rights in a company.                                                                                                                                  |

(d)

| S. No. | Basis of Distinction | Internal Stakeholders                                                                         | External Stakeholders                                                                                                                                     |
|--------|----------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Nature               | The individuals who are directly a part of the organisation are called internal stakeholders. | The parties or the groups who are not a part of the organisation but are affected by its activities, are called the external stakeholders of the company. |
| 2.     | Nature of Impact     | Internal stakeholders have direct impact on the company.                                      | External stakeholders have indirect impact on the company.                                                                                                |

(e)

| S. No. | Basis of Distinction | Central Bank                                                                                   | Commercial Bank                                                                                                                         |
|--------|----------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Meaning              | The Central Bank is the apex institution of the monetary and banking structure of the country. | The Commercial Bank is one of the organs of the money market. It accepts deposits and lends money to individuals, firms and industries. |
| 2.     | Status               | It is a banker to the government and does not engage itself in ordinary banking activities.    | It is a banker to the general public.                                                                                                   |

**Answer 2.**

(a) **E-tailing** : E-tailing is the abbreviation for electronic retailing. It is the sale of goods and services through the internet. E-tailing involves business-to-business or business-to-customers transactions. It can be regarded as the internet front of any traditional retailer. Ex. : amazon.com, Flipkart. com.

(b) **Fixed Costs** : Costs which are generally attributed to fixed factors of production, are called fixed costs. These are the costs which do not change with the change in the size of output during short period. These are primarily incurred on fixed factors like machines, building, etc. These are not related to the level or quantity of output in the short run. Production may come down to zero or be doubled, but fixed costs remains the same. For instance, a sugar mill usually remains closed for about 3 months during a year for want of raw material (sugarcane) but still the mill owner has to incur certain costs like rent of building, interest on past borrowings, salaries of permanent employees, municipal taxes, insurance premium etc.

(c) **Budget** : Budget is a forecast of the financial activities of the business to achieve certain specific purpose, over a specified time period. In short, budget is an estimate of the future receipts and payments. It is compiled and re-evaluated on a periodic basis. Budgets can be prepared for a person, a family, a group of people, a business, a government, a country, a multinational organisation etc. It can be expressed in physical or monetary units.

(d) **Provident Fund** : It is a social security scheme started by the Government of India. Its purpose is to provide employees with lump sum payments at the time of exit from their place of employment. Under the contributory provident fund scheme, monthly deductions from the employee's salary are made. The employer contributes an equivalent amount.

(e) (i) **Upgradation of Several Employees** : The existing employees of the organisation get an

opportunity for promotion. When a certain person is promoted, several other persons below his rank are automatically promoted. In this way, one vacancy filled from within, results in upgradation of several employees.

(ii) **Familiarity with Policies** : The Existing employees are aware of policies, plans and the actual working conditions of the enterprise, so they are not required to waste time and energy in learning it.

**Answer 3.**

(a) **1. Wider Choice** : Selection from external sources facilitates the choice of personnel from among a large number of applicants. The enterprise can carefully weigh the plus and minus points of all the candidates and then select the best.

**2. Fresh Outlook** : The enterprise greatly benefits from the freshness of outlook and approach of personnel chosen from external sources. This is because they are without any in-built preferences and prejudices, so common in the case of personnel promoted or transferred to fill the vacancies internally.

(b) E-security is the process of securing the data and information, adopted by a website, from the external attacks. It involves protection of e-commerce assets from unauthorised access, use, alteration or destruction. Various e-marketing and e-tailing websites follow strict e-security measures in order to protect their sensitive information, from getting hacked. Ex. : CCTV Surveillance Finger print scanners.

(c) Industrial Disputes Act, 1947 defines industrial relation as "a relation between employer and employees, employees and trade unions".

Thus, industrial relations are the results of those mutual feelings and views of employers and employees which they adopted to get better results of planning, organising, supervision, direction, co-ordination and control of their industrial enterprise.

(d) **Principle of Utmost good faith or Uberrimae Fidei Contract** : Uberrimae Fidei Contract refers

to an insurance contract signed on the foundation of utmost good faith on the part of both the insurer and the insured. The insurance company assumes that the facts disclosed on the proposal form are reliable and accurate. Consequently, as any loss occurs, the insurance company will check the facts and materials provided by the insured. In case the details provided were inaccurate, then the insured shall not be compensated. For example, a person driving in a drunken state met with a car accident, and then claim compensation from his or her insurance company. However, instead of revealing the truth, the insured fabricated the facts and say that the accident occurred due to the negligence of other driver. In such a case, the insurance company has full right to reject the contract of insurance on grounds of fabricating the truth and insured will not be entitled for any compensation.

- (e) The Central Bank is the bank for all the commercial banks of the country. Legally or conventionally, commercial banks have to keep a certain proportion of their deposits in the form of cash, as a reserve with the Central Bank. These reserves facilitate the Central Bank to control the issue of credit by commercial banks and, thus, keep the credit system elastic.

#### Answer 4.

- (a) **1. Proficiency Tests :** Proficiency tests seek to measure the skill and abilities which the candidate already possesses at the time of testing. Trade tests or skill tests are examples of proficiency tests. They determine whether the claims made by the candidate about his skills and abilities are proved by his actual test performance.
- 2. Interest Tests :** Interest tests identify patterns of interest, that is, areas in which the individual shows special concern, fascination and involvement. These tests will suggest what types of jobs may be satisfying for the employees.
- (b) Bonded warehouses are those warehouses which are licensed by the government to accept imported goods for storage before the payment of custom duties by importers of such goods. These warehouses are situated near the ports. The goods are delivered by the warehouse-keepers only after the payment of import duty. Such warehouses are called 'Bonded Warehouses' and goods stored therein are said to be 'in a bond'.
- (c) Insurance is a contract between two parties by which one of them undertakes to indemnify the other against a loss which may arise on the happening of some event. The document containing the contract is called the Policy of

Insurance, the person insured is called the Assured or Insured, and the party which insures is known as the Assurer, Insurer or Underwriter.

- (d) **1.** It applies to all goods, services and unfair trade practices, unless specifically exempted by the Central Government.
- 2.** It covers all sectors whether private or public.
- (e) **Credit Card Fraud :** This type of fraud is most common and most committed fraud of recent times. One can access the account and retrieve cash from the account at any point if he or she has the PIN number of the debit or credit card. This particular type of fraud can also be termed as cyber fraud where fraudsters call up a consumer at random claiming to be from the bank and take their details, withdrawing cash from them at a later point. The fraudsters can also make clone of the card to withdraw money. It may be :
1. Physical theft of card.
  2. Information concerning the card and bank account may be stolen.

### SECTION-B

#### Answer 5.

- (a) **The objectives of marketing are as follows:**

- 1. Integrated Organisation :** Integrated organisation means that all the different departments of organisation, *i.e.*, production, finance, purchase and planning must be tightly integrated with each other, keeping marketing at the centre. This is important because every function of organisation has an impact on customer and the objective should be to see that all the functions lead to a favourable impression on customer and work for customer satisfaction.
- 2. Consumer Orientation :** The purpose of any business is to create a customer. It is the customer who determines what a business is. It is the customer, who is willing to pay for a good or service, converts economic resources into wealth and things into goods. Therefore, the first objective of marketing is consumer orientation.
- 3. Profitability :** Business organisation is an economic institution which is set up for earning profits and not for charity. Thus, one of the main objectives of marketing is to maximise profits with minimum investment but it should not be carried out at the expense of consumer satisfaction.
- 4. Social Service :** The other objective of marketing is social orientation. Only those goods and services should be marketed which are environment friendly, useful to the consumer and enhance the standard of living. Reasonable prices should be charged for qualitative goods and services.



**5. Consumer Satisfaction :** Mere consumer orientation does not fulfill the objective of marketing. Consumer orientation along with an integrated organisation leads to consumer satisfaction. This is also one of the most important objectives of marketing.

- (b) Enterprise Resource Planning or ERP is a kind of software which is used to manage various functions of an organisation. Right from the inventory management to payment done to the employees, every aspect of the business can be monitored and managed by the system.

ERP manages business processes of various departments and functions and helps the top management to have a better sense and control over the business. The centralised software system is divided into some basic modules, based on which the performance of the various departments can be checked. The following are the basic modules of ERP :

- 1. Human Resource:** This module helps in managing and tracking employees' performance. It also helps the management to decide on the pay hike and performance bonus.
- 2. Inventory:** This module helps the inventory system to keep track of the items and trace their current location in organisation.
- 3. Sales and Marketing:** It tracks the sales process starting from the queries made by the customers to the dispatch of the orders.

#### Answer 6.

- (a) The expectation of employees from business organisation :

- 1. Fair Wages or Salaries :** Employees of an organisation expect fair remuneration for the work done by them. If the workers or employees do not get salaries or wages proportionate to work done by them, their efficiency will be affected which in turn would result in lower product quality and disloyalty to the organisation in terms of continuity with the job.
- 2. Good Working Conditions :** Employees of an organisation expect their working conditions to be proper. It means, that the environment in which the employees work, should be such that they are able to work with their full potential.
- 3. Organisational Culture :** Employees expect that the organisational ambience and culture should be amicable. They expect that the relationship between boss and subordinate should not be autocratic and imposed.
- 4. Participation in Management :** Employees expect that their demands should be considered

favourably. To communicate their demands to top level management or Board of Directors, they expect that a person (employee) representing them should hold a post on top level management.

**5. Training and Development :** Employees dislike remaining stuck to the same position forever. Instead, they want themselves to go on to the superior position for which they require proper training. Employees expect the organisation to look into this need and make proper arrangements for their training and development. They also expect to get their due promotions.

- (b) The utilities of budget are as follows :

- 1. Provides Target :** A budget fixes the target in physical and financial terms. This helps the managers to understand their responsibilities precisely, by which they can take decisions to attain the set targets.
- 2. Coordinates Efforts :** A budget helps to coordinate the efforts of various divisions and departments. It is possible to fix the divisional or departmental targets so that all divisions or departments may work harmoniously.
- 3. Provides Higher Efficiency :** A budget brings efficiency and economy in the working of an enterprise. It helps the management to achieve the most profitable combination of different factors of production.
- 4. Delegates Authority :** A budget allows delegation of authority without loss of control. It permits participation of employees at all levels.
- 5. Provides Motivation :** A budget represents the goals to be achieved. It tells the management what efforts and results are expected out of them. It motivates them to work hard in order to achieve the target represented by the budget.

#### Answer 7.

- (a) The merits of road transport are as follows :

- 1. Cheapest Mode of Transportation :** All forms of road transportation—man driven, animal driven and motor driven are the cheapest form of transportation as the laying and maintenance cost of roads is the responsibility of the state and not of the owners of the vehicles.
- 2. Flexibility :** This is the one advantage available only to the user of road transportation. It collects goods from the point of production and delivers the goods at the place of user.
- 3. Safety :** Damage due to handling of goods is lesser in this form of transportation, because, it unloads the goods directly at the door of the user.
- 4. Quick :** It is a very quick means of transportation over short distances.



**5. Less Time Consuming :** It takes less time for carrying goods from one place to another and thus it helps the businessmen in increasing their turnover.

- (b) (i) **ATM :** An ATM is a device located on or off the bank's premises to receive and give out cash round the clock and to provide, other banking services. It is a specialised terminal connected to a bank's central computer via public telephone network. ATMs allow access to a range of banking transactions by inserting a magnetic strip plastic card called ATM card containing account details and keying in a Personal Identification Number (PIN).

(ii) **Debentures :** It is a document or certificate issued by a company under its seal as an acknowledgement of its debt. It is also an undertaking to repay the specified sum with interest to its holder. They are borrowed funds or the loan capital of a company. Debenture holders are creditors of the company, have least risk, are entitled to interest, have no voting rights. They get payment on priority basis over shareholders. Debentures can be converted into shares. They appeal to cautious investors.

#### Answer 8.

- (a) The Act gives the powers to the Central Government for controlling environmental pollution :

1. Take all necessary steps to protect the quality of the environment.
2. Coordinate the actions of states, officers and other authorities under the Act.
3. To make the list of standards to be maintained for the discharge of the pollutants in the environment.
4. Plan and execute a nationwide programme to prevent and control the environmental pollution.
5. Empower any person to inspect, take samples and perform any kind of tests to find out the level of pollution.

- (b) The benefit of advertising to producers are as follows :

**1. To introduce new Product:** Advertisement of the new product is necessary so that consumer become aware about the product, its availability, its utility, its price etc., thus advertisement is crucial to promote the sell of the new product.

**2. Expansion of Production:** Increased demand brought about by advertising has to be met by a corresponding increase in production. In this

way, advertising causes production to expand in order to cater to an increased demand.

**3. Enhances Goodwill:** Advertising is instrumental in increasing the goodwill of the company. It introduces the manufacturer and his product to the people. Repeated advertising and better quality of products strengthens manufacturers reputation and enhances his goodwill.

**4. Large Turnover and Huge Profits:** An increased demand, generated through advertisements can create a larger turnover for the company and eventually resulting in more profits.

**5. Information about Different Options and Comparative Prices:** Advertisement keeps the buyers well informed by providing information about the different products and their relative prices.

#### Answer 9.

- (a) Some common ways by which consumers are exploited by manufacturers and traders are given below :

**1. Underweight and Under-measurements:** The goods being sold in the market are sometimes not measured or weighed correctly.

**2. Sub-standard Quality:** The goods sold are sometimes of sub-standard quality. Selling of consumable beyond their expiry dates and supply of deficient or defective home appliances are generally the regular grievances of consumers. This also includes the sales of medicines after expiry date, and selling spurious drugs (sub-standard drugs).

**3. High Prices:** Very often the traders charge a price higher than the prescribed retail price.

**4. Duplicate Articles:** In the name of genuine parts or goods, fake or duplicate items are being sold to the consumers.

**5. Adulteration and Impurity:** Costly edible items such as oil, ghee and spices are adulterated in order to earn higher profits. Adulteration of foods causes heavy loss to the customers; they suffer from monetary loss as well as spoil their health.

- (b) (i) **NEFT :** NEFT stands for National Electronic Funds Transfer. NEFT is a nation-wide payment system facilitating one-to-one funds transfer. It is one of the most prominent ways of transferring money since its inception in the year 2005. Under this scheme, individuals, firms and corporates can electronically transfer funds from any bank branch to any individual, firm or corporate having an account with any other bank branch in the country participating in the scheme. There is

no limit – either minimum or maximum – on the amount of funds that could be transferred using NEFT.

(ii) **RTGS** : The acronym 'RTGS' stands for Real Time Gross Settlement, which can be defined as the continuous settlement of funds transfers individually on an order by order basis. 'Real Time' means the processing of instructions at the time they are received rather than at some later

time; 'Gross Settlement' means the settlement of funds transfer instructions occurs individually (on an instruction by instruction basis). Therefore, under RTGS, the funds transfer takes place on a real time basis, or in other words, at the time the request is received. It is one of the fastest inter bank money transfer facility available through banking channels in India. The minimum limits for transfer of fund in RTGS is ₹ 2,00,000.

**Answer 10.**

**In The Books of A.B. Chandra**  
**Trading Account for the year ending 31<sup>st</sup> December 2019**

| Particulars         | Amount<br>(₹) | Particulars      | Amount<br>(₹) |
|---------------------|---------------|------------------|---------------|
| To Opening Stock    | 4,000         | By Sales         | 83,000        |
| To Purchases        | 31,250        | (-) Sales return | <u>3,000</u>  |
| (-) Purchase return | <u>1,250</u>  | By Closing stock | 12,000        |
| To Wages            | 2,000         |                  |               |
| To Gross Profit c/d | 56,000        |                  |               |
|                     | 92,000        |                  | 92,000        |

**Profit and Loss Account for the year ending 31<sup>st</sup> December 2019**

| Particulars          | Amount<br>(₹) | Particulars          | Amount<br>(₹) |
|----------------------|---------------|----------------------|---------------|
| To Insurance         | 700           | By Gross Profit b/d  | 56,000        |
| To Trade expenses    | 1,200         | By Discount received | 750           |
| To Salaries          | 5,000         |                      |               |
| To Discount allowed  | 750           |                      |               |
| To Telephone charges | 1,000         |                      |               |
| To Net Profit        | 48,100        |                      |               |
|                      | 56,750        |                      | 56,750        |

**Balance Sheet as on 31<sup>st</sup> December 2019**

| Liabilities    | Amount<br>(₹) | Assets           | Amount<br>(₹) |
|----------------|---------------|------------------|---------------|
| Capital        | 40,000        | Furniture        | 20,000        |
| (-) Drawing    | <u>2,800</u>  | Building         | 61,000        |
|                | 37,200        | Debtors          | 10,000        |
| (+) Net profit | <u>48,100</u> | Bills receivable | 1,800         |
| Creditors      | 15,000        | Closing stock    | 12,000        |
| Bank Loan      | 10,000        | Cash in Hand     | 2,000         |
|                |               | Cash at Bank     | 3,500         |
| Total          | 1,10,300      |                  | 1,10,300      |

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt *all* questions from this Section)

#### Question 1.

Distinguish between :

- (a) Marketing and Sales.
- (b) Central Bank and Commercial Bank.
- (c) Product and Service.
- (d) Debit Card and Credit Card.
- (e) Shares and Debentures.

#### Question 2.

- (a) Mention any two objectives of Pricing.
- (b) Explain 'Sales Budget'.
- (c) What is 'Social Advertising Media' ?
- (d) What is 'Discounting of bills of exchanges' ?
- (e) What do you mean by On-the-job training and off-the-job training ?

#### Question 3.

- (a) What is meant by 'Deferred Revenue Expenditure' ?
- (b) What do you understand by 'Semi-variable Costs' ?
- (c) How do warehouses help in price stabilisation ?
- (d) Why is a 'Master Budget' also known as a Summary Budget ?
- (e) Explain the term 'Logistics'.

#### Question 4.

- (a) What is 'National Electronic Fund Transfer' ?
- (b) State any two precautions while using an 'ATM'.
- (c) What do you understand by 'Health Insurance' ?
- (d) What do you mean by Internet and Cyber Fraud ?

#### Question 10.

The following is the Trial Balance of ABC Industries as on 31st December 2015.

**Trial Balance of ABC Industries**  
as on 31.12.2015

| Particulars    | Amount (Dr.) | Particulars       | Amount (Cr.) |
|----------------|--------------|-------------------|--------------|
| Salaries       | 4,000-00     | Sales             | 83,000-00    |
| Cash Balance   | 2,000-00     | Rent Received     | 2,000-00     |
| Bank Balance   | 3,000-00     | Purchases Returns | 1,000-00     |
| Wages          | 1,500-00     | Creditors         | 7,000-00     |
| Insurance      | 500-00       | Capital Account   | 25,000-00    |
| Trade Expenses | 7,000-00     |                   |              |

\*\* Answer is not given due to change in the present syllabus.

- (e) Explain any two features of Environment (Protection) Act, 1986.

### SECTION-B (40 Marks)

Attempt *any four* questions from this Section.

#### Question 5

- (a) State any five expectations of employers from a business enterprise.
- (b) Briefly discuss any five advantages of E-commerce over traditional methods of transactions.

#### Question 6.

- (a) What is an Advertising Agency ? Explain any two of its functions.
- (b) Explain any five rights enjoyed by consumers as per The Consumer Protection Act, 1986. \*\*

#### Question 7.

- (a) What is a Capital Market ? Explain any two of its functions.
- (b) Explain any five objectives of Industrial Relations.

#### Question 8.

- (a) Explain the 'Clearing House Function' of the Central Bank.
- (b) Explain any five disadvantages of Air Transport.

#### Question 9.

- (a) Explain the following Principles of Insurance :
  - (i) Doctrine of Subrogation
  - (ii) Mitigation of Loss
- (b) Explain briefly any five functions of 'Central Pollution Control Board'.

|                          |                    |                    |
|--------------------------|--------------------|--------------------|
| Discount Allowed         | 750-00             |                    |
| Opening Stock (1.1.2015) | 5,000-00           |                    |
| Buildings                | 40,000-00          |                    |
| Furniture                | 15,000-00          |                    |
| Sales Returns            | 250-00             |                    |
| Drawings                 | 1,000-00           |                    |
| Debtors                  | 5,000-00           |                    |
| Purchases                | 30,000-00          |                    |
| Legal Charges            | 1,000-00           |                    |
| Advertisement Expenses   | 2,000-00           |                    |
| <b>Total</b>             | <b>1,18,000-00</b> | <b>1,18,000-00</b> |

The closing stock was valued at ₹ 9,000.

You are required to prepare a Trading Account and a Profit and Loss Account for the year ending 31<sup>st</sup> December 2015 and a Balance Sheet as on 31<sup>st</sup> December, 2015.

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) The differences between Marketing and Sales are as follows:

| S. No. | Basis of Difference | Marketing                                                                                                                            | Sales                                                                                                                                                           |
|--------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Meaning             | Marketing is understanding the requirement of the customers in such a way that whenever any product is introduced, it sells it self. | The act of transfer of ownership of a product from the manufacturer to the ultimate customer in exchange of money or any other consideration is known as sales. |
| 2.     | Orientation         | It is customer oriented.                                                                                                             | It is product oriented.                                                                                                                                         |

- (b) The differences between Central Bank and Commercial Bank are as follows:

| S. No. | Basis of Difference   | Central Bank                                  | Commercial Bank                                                   |
|--------|-----------------------|-----------------------------------------------|-------------------------------------------------------------------|
| 1.     | Functions             | It functions as the apex bank of the country. | It functions according to the rules set by the Central Bank.      |
| 2.     | Note issuing facility | It has the monopoly of issuing notes.         | It only creates credit in the economy and can only issue cheques. |

- (c) The differences between Product and Service are as follows:

| S. No. | Basis of Difference | Product                                                     | Service                                                                      |
|--------|---------------------|-------------------------------------------------------------|------------------------------------------------------------------------------|
| 1.     | Tangibility         | It can be seen, touched and felt. It is tangible in nature. | It cannot be seen, touched but can only be felt. It is intangible in nature. |
| 2.     | Replacement         | It can be replaced.                                         | Once delivered, it cannot be replaced.                                       |

- (d) The differences between Debit Card and Credit Card are as follows:-

| S. No. | Basis of Difference  | Debit Card                                   | Credit Card                              |
|--------|----------------------|----------------------------------------------|------------------------------------------|
| 1.     | Status of cardholder | A debit card-holder is not a debtor to bank. | A credit cardholder is a debtor to bank. |
| 2.     | Credit facility      | No such facility is available.               | Such facility is available.              |

- (e) The differences between Shares and Debentures are as follows:

| S. No. | Basis of Difference | Shares                                  | Debentures                                                       |
|--------|---------------------|-----------------------------------------|------------------------------------------------------------------|
| 1.     | Status of Holder    | Share holders are the owner of company. | Debenture holders are not owner but the creditor to the company. |
| 2.     | Voting rights       | The holder of shares have voting right. | The holder of debenture do not have voting right.                |



**Answer 2.**

- (a) The two objectives of Pricing are as follows:-

1. **Sales Maximisation** : Companies tend to set up the price in such a way that more sales occurs in longrun. In this way the pricing strategy also involves an objective of increasing sales volume for the organisation.

2. **To Face Competition** : One of the major objectives of pricing is to make the product or services competitive in the market. Pricing provides major competitive advantage to the companies.

- (b) The amount of money that a company expects to receive from the sale of goods and services during a particular period of time is known as Sales Budget. A business uses it to set department goals, estimate earnings and forecast production requirements. The sales budget affects both other operating budgets and overall master budget of the company.
- (c) Social advertising media often create and deliver messages with the aim to educate the public about certain social issues. It contains strong and direct messages and they do not generally talk about any particular product or services but social issues like child marriage, dowry, corruption, etc. through Radio, TV, Newspapers are Social Media.
- (d) Discounting of a bill means selling the bill before the due date to a bank at less than the face value. The banker takes the bill and in return gives cash which is equal to the amount of the bill minus the discount. The bank may rediscount the bill with the Reserve Bank of India. Alternatively, the bank may collect the amount of the bill from the drawee on the due date. In case, the bill is dishonoured on maturity, the bank can recover the payment from the drawer.
- (e) 1. **On the job training** : The worker are trained while he is engaged in the work in the actual work situation. He is given the work under the supervision of some senior employee and learns the job at the hand of experience worker.
2. **Off the job training** : It is conducted separately from the job environment. Study material is supplied and there is full focus on learning rather than performing.

**Answer 3.**

- (a) Deferred revenue expenditures are those expenditures which are incurred in one accounting period and they do not create any asset but their benefit is spread over more than one accounting period. Example : Heavy advertising expenses, Research expenses.

- (b) The costs which vary with every increase or decrease in the volume of production but do not vary proportionately are called as semi variable cost. Because of the variable element, they fluctuate with volume and because of fixed element they do not change in direct proportion to output. Example : telephone costs, basic rental is fixed but call charges are variable.
- (c) Warehouses stores goods when their supply exceeds demand and releases them when demand is more than the immediate production. Warehouses ensure a regular supply of goods in the market. This matching of demand with supply helps to stabilise prices.
- (d) Master Budget is known as the summary of various budgets because it indicates the organisation how much it is earning and what expenses are incurred as a whole. A Master Budget helps in achieving the long-term goals of the organisation.
- (e) Logistics is the management of the flow of the raw materials and finished products between the point of origin *i.e.*, supplier and the point of consumption *i.e.*, consumers in order to meet the requirements of the customers or corporations.

**Answer 4.**

- (a) NEFT refers to National Electronic Fund Transfer which is a system of inter bank transfer of funds electronically. There is no limit either maximum or minimum on the funds that could be transferred using NEFT. The funds transfers take place in hourly batches. All transfers are held till that time. Any NEFT transaction after a designated settlement time has to wait till the next designated settlement time.
- (b) The two precautions while using an ATM are as follows :
1. Never take help from strangers for using the ATM Card.
  2. Press the 'Cancel' key before moving away from the ATM.
- (c) Health Insurance is defined as the coverage that provides the benefits for the payments as a result of sickness or injury. It includes insurance for losses from accident, medical expenses, accidental death and disability.
- (d) The Internet is the global system of interconnected computer networks that use the Internet protocol suite to link devices worldwide. Cyber fraud refers to the deliberate deception for unfair or unlawful gain that occurs online by a hacker. It includes data break-ins, identity theft and cyber bullying.

- (e) Features of Environment (Protection) Act, 1986:
1. Take all necessary measures for protecting the quality of environment.
  2. Lay down standards for discharge of environmental pollutants.

### SECTION-B

#### Answer 5.

- (a) Expectations of employers from the organisation are :

1. **Profit** : Profit is the primary expectation of any business owner or manager. It is the reward of an entrepreneur. Every owner wants to run business and make profits.
2. **Growth** : All employers look for the growth of business. They want their business to grow and prosper in all directions over a period of time. Growth can be achieved in business by increasing the market share, adding more products, expansion of market, cutting down of costs and increasing the productivity.
3. **Market Leadership** : To become the leader of the market, is another expectation of employer. To attain a niche in the market, innovation is an important factor. Innovation may be in the field of advertising, finance, product etc.
4. **Expectations from Suppliers** : Owners and managers expect their suppliers to supply the goods regularly or whenever required, so that the production process is not hindered. They also expect suppliers to charge reasonable prices and sell goods to them on easy terms of credit.
5. **Expectations from Employees** : Employers expect employees to be faithful to the organisation, so that the secrets of the organisation are not disclosed to the competitors. Employers expect serious and devoted efforts from employees towards their work in return for the remuneration and services/amenities provided to them.

- (b) The five advantages of E-commerce over traditional methods of transactions are as follows :

1. **No geographical limitation** : People from any corner of the world can order a specific product with few clicks.
2. **Lower cost** : The number of employees and properties required to get the business up and running is much less as compared to a physical store.
3. **Save travel time** : For a physical store, the customer has to visit the outlets to purchase

whereas in E-commerce it can just be done with few clicks sitting anywhere, which saves lots of time.

(iv) **Abundance of information** : In E-commerce plenty of information is available for a product to be purchased by a buyer.

(v) **Remains open all the time** : E-commerce websites are always open  $24 \times 7$ , so it becomes more convenient for a buyer to order online anytime.

#### Answer 6.

- (a) An advertising Agency is a creative agency which is dedicated in creating, planning and handling advertising on the behalf of the company. It also looks into promotion and marketing for its clients. The two functions of advertising Agency are as follows :

1. **Planning of Advertisement** : One of the primary functions of the advertising agencies is to plan for the advertising. After analysing the clients product of services, the prevailing competitions and the market conditions, the agency makes the entire advertising plan and execute the plan after taking clients approval.

2. **Media Selection** : Advertising agency assists an advertiser in selecting a proper media to promote his advertisement. Media selection is the most critical function of advertising agency as it must select most suitable media which has the potential to give best results at lowest cost. This function determines the effectiveness of the advertisement and the impact it will have on the target audience.

#### Answer 7.

- (a) Capital Market is a financial market in which long-term debts and securities are bought and sold. It channels the wealth of savers to those who can put it to long-term productive use. The two functions of it are as follows:-

1. **Mobilisation of Savings** : It mobilises funds from people for further investments in the productive channels of the economy.

2. **Capital Formation** : Capital formation is the net addition to the existing stock of capital in the economy. It generates the ideal resources for various segments of the industry.

- (b) **The five objectives of Industrial Relations are as follows :**

1. To safeguard the interest of labour and management by securing the highest level of mutual understanding.

2. To avoid industrial conflicts and develop better relations, which are essential for the industrial progress of the country.
3. To raise productivity to a higher level in the era of full employment.
4. To establish and promote the growth of an industrial democracy based on labour partnership in the sharing of profits and managerial decision-making.
5. To eliminate or minimise the number of strikes, lockouts by providing reasonable wages, improved living and working conditions for the employees.

**Answer 8.**

- (a) As a clearing house, the central bank settles the claim of commercial banks through book entries. The Central Bank provides clearing house facility to commercial banks. The daily balances between the commercial banks are adjusted by debit and credit entries in their respective account with the Central Bank. Example : Suppose BOB has to pay amount of ₹ 20 lakh to PNB. To settle its due BOB will issue a cheque of ₹ 20 lakh to PNB. The RBI will debit the account of BOB by ₹ 20 lakh and credit the account of PNB by the same amount.

The main advantage of clearing house function are :

1. Settlement between different commercial banks can be made by book entries.
2. The possibilities of cash withdrawal during the economics crisis are reduced.

- (b) **The five disadvantages of Air Transport are as follows :**

1. **Risky :** It is the most risky form of transport because a minor accident may put a big loss to passengers, cargo and crew.
2. **Very Costly :** It is costlier in comparison to the other modes of transport. The operating cost of aeroplanes is higher and the common people can't afford it.
3. **Small Carrying Capacity :** It has small carrying capacity due to which it is not suitable for the transportation of bulky and cheaper goods.
4. **Unreliable :** It is unreliable as it depends upon weather forecast and can be delayed or cancelled at times.

**5. Huge investments :** It requires huge investment for construction and maintenance of aerodromes. It also requires trained personnel.

**Answer 9.**

- (a) **1. Doctrine of Subrogation :** According to this Principle, after paying the compensation, 'the insurer steps into the shoes of the insured'. When the insured is compensated for the loss or damage to the property insured by him, the right of the ownership of such property passes on to the insurer. This principle is applicable to all contracts of insurance except life insurance.

**2. Mitigation of Loss :** According to this Principle, the insured must take care of the property of insurance in the same way as he would take care without taking the insurance policy. The insured should not become careless of his property after taking the insurance policy. He should take the preventive steps to ensure that the damage is curbed or minimised as much as possible.

- (b) **The five functions of Central Pollution Control Board are as follows :**

**1. Air Pollution Check :** The Central Pollution Control Board ensures that the vehicles run at a proper speed and do not emit the harmful smoke in case of overheating or over speeding. Regular monitoring of the four pollutants (Sulphur Dioxide, Nitrogen Oxide, Suspended Particulate Matter and Respirable Suspended Particulate Matter) is done by the CPCB.

**2. Water Pollution Check :** Fresh water is a warehouse for agriculture, propagation of fisheries etc. Water quality monitoring is done on a quarterly basis so as to make sure that there is no pollutant in the water and it remains fresh for consumption.

**3. Noise Pollution Check :** Places where sound is high is kept under the monitoring system so that the sound limit doesn't exceed the decibel level for the safe and protected living of the elderly, children and the animals.

**4. Urban Area Programs :** Various programs have been set up in urban areas as those areas have been identified as the major problem areas.

**5. Municipal Solid Waste Rules :** MSW rules, 2000 is taken into consideration for the collection, storage, transportation, disposition of the solid municipal waste. The necessary information collection is CPCB's duty.

Answer 10.

Trading account of the ABC industries as on 31<sup>st</sup> December 2015

| Particulars                | Amount (₹) | Particulars            | Amount (₹) |
|----------------------------|------------|------------------------|------------|
| To Opening Stock           | 5,000      | By sales 83,000        |            |
| To Purchases 30,000        |            | (-) Sales Return (250) | 82,750     |
| (-) Purchase Return (1000) | 29,000     | By Closing Stock       | 9,000      |
| To Wages                   | 1,500      |                        |            |
| To Gross Profit c/d        | 56,250     |                        |            |
|                            | 91,750     |                        | 91,750     |

Profit and loss account for the year ending 31<sup>st</sup> December 2015

| Particulars         | Amount (₹) | Particulars      | Amount (₹) |
|---------------------|------------|------------------|------------|
| To Salaries         | 4,000      | By Gross Profit  | 56,250     |
| To Insurance        | 500        | By Rent Received | 2,000      |
| To Trade Expenses   | 7,000      |                  |            |
| To Discount Allowed | 750        |                  |            |
| To Advertising Exp. | 2,000      |                  |            |
| To Legal Charges    | 1,000      |                  |            |
| To Net Profit       | 43,000     |                  |            |
|                     | 58,250     |                  | 58,250     |

Balance Sheet as on 31<sup>st</sup> December 2015

| Liabilities           | Amount (₹) | Assets              | Amount (₹) |
|-----------------------|------------|---------------------|------------|
| Capital 25,000        |            | Building 40,000     |            |
| (+) Net Profit 43,000 |            | Furniture 15,000    |            |
| 68,000                |            | Debtors 5,000       |            |
| (-) Drawing (1000)    | 67,000     | Closing Stock 9,000 |            |
| Creditors 7,000       |            | Cash at Bank 3,000  |            |
|                       |            | Cash in Hand 2,000  |            |
| Total 74,000          |            | Total 74,000        |            |

GURUKUL



## QUESTIONS

### SECTION-A (40 Marks)

(Attempt all questions from this Section)

#### Question 1.

Distinguish between :

- (a) Consumer goods and Industrial goods. [2]
- (b) Shut down costs and Sunk costs.\*\* [2]
- (c) Standardization and Grading. [2]
- (d) Savings Account and Current Account. [2]
- (e) Downward Communication and Upward Communication.\*\* [2]

#### Question 2.

- (a) Why is brand loyalty considered an asset for the company? \*\* [2]
- (b) How does 'Status barrier' affect Effective Communication? \*\* [2]
- (c) What do you mean by 'Indirect material'? Give two examples. [2]
- (d) "Selection is a negative process." Explain. [2]
- (e) Explain 'Contribution' as a principle of insurance. [2]

#### Question 3.

- (a) Mention any two utilities of a Budget. [2]
- (b) Name and explain the type of training designed to correct mistakes. [2]
- (c) What is meant by 'Capital Receipts'? [2]
- (d) State any two advantages of Traveller's cheques. [2]
- (e) Briefly describe the role of Marketing Research.\*\* [2]

#### Question 4.

- (a) Why is financing an essential function of marketing? [2]
- (b) Explain any two advantages of Rail Transport. [2]
- (c) Explain the Right to Consumer Education under the Indian Consumer Protection Act. [2]
- (d) State any four sustainable uses of water.\*\* [2]
- (e) "Both, conservation and restoration of natural resources or ecology cannot be possible without public awareness and community participation." Comment.\*\* [2]

### SECTION-B (40 Marks)

Attempt any four questions from this Section.

#### Question 5

- (a) Explain any five expectations of suppliers from a business organisation. [5]

\*\* Answer is not given due to change in the present syllabus.

- (b) Explain any five merits of written communication to a business organisation.\*\* [5]

#### Question 6.

- (a) Mention five differences between advertising and personal selling (Salesmanship).\*\* [5]
- (b) Explain any five techniques used in Sales Promotion. [5]

#### Question 7.

- (a) Briefly explain the importance of marketing. [5]
- (b) Explain : [5]
  - (i) Bank Draft
  - (ii) Indemnity as a principle of insurance.

#### Question 8.

- (a) Briefly explain any five types of Budgets. [5]
- (b) Describe the role of Trade Union in a business concern. [5]

#### Question 9.

- (a) Explain any five advantages of air transport over water transport. [5]
- (b) What do you mean by Group Life Insurance? [5]
 

Explain three main features of Group Life Insurance.

#### Question 10.

The Trial Balance given below was prepared by Pratim Pal on 31st December, 2000. [10]

Prepare a Trading Account and a Profit and Loss Account for the year ending 31st December, 2000 and Balance Sheet as on 31st December, 2000.

**Trial Balance**

|                          | Dr. (₹)   |                   | Cr. (₹)   |
|--------------------------|-----------|-------------------|-----------|
| Drawings Account         | 1,000-00  | Capital Account   | 14,400-00 |
| Premises                 | 7,500-00  | Sales             | 23,120-00 |
| Fixtures and Fittings    | 1,560-00  | Discount Received | 330-00    |
| Opening Stock (1.1.2000) | 2,730-00  | Purchase Returns  | 730-00    |
| Purchases                | 15,410-00 | Sundry Creditors  | 1,700-00  |
| Discount Allowed         | 580-00    |                   |           |
| Sales Returns            | 1,020-00  |                   |           |
| Rates                    | 750-00    |                   |           |

|                |          |  |  |              |           |  |           |
|----------------|----------|--|--|--------------|-----------|--|-----------|
| Insurance      | 210-00   |  |  | Cash at Bank | 2,350-00  |  |           |
| Wages          | 1,250-00 |  |  | Salaries     | 2,000-00  |  |           |
| Trade Expenses | 960-00   |  |  |              | 40,280-00 |  | 40,280-00 |
| Sundry Debtors | 2,310-00 |  |  |              |           |  |           |
| Cash in Hand   | 650-00   |  |  |              |           |  |           |

Closing stock was valued at ₹ 3,140.00 on 31st December, 2000.

## ANSWERS

### SECTION-A

#### Answer 1.

|     |                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                 |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (a) | <b>Consumer Goods</b><br><b>(i)</b> Consumer goods are those goods which are desired by consumers for their personal use.<br><b>(ii)</b> These are finally consumed by the consumer.<br>Examples : Bread, butter, soaps. | <b>Industrial Goods</b><br>Industrial goods are those goods which are required by business firms and factories for helping in further production.<br>These goods help in further production of the commodities, including consumer goods.<br>Examples : Nail, cotton, oil                       |
| (c) | <b>Standardisation</b><br><b>(i)</b> Standardisation refers to the specified and uniform quality of the products.<br><b>(ii)</b> It is concerned with setting up of the standards to which a product must conform.       | <b>Grading</b><br>Grading is the process of sorting individual units of a product into well-defined classes or grades of quality.<br>It is concerned with classification of units of a product in different categories depending on the basis of classification like colour, quality, size etc. |
| (d) | <b>Savings Account</b><br><b>(i)</b> This account is suitable for individuals and households for small savings.<br><b>(ii)</b> Interest is paid on the deposited amount in this account.                                 | <b>Current Account</b><br>This account is suitable for business firms.<br>No interest is paid on the deposited amount in this account.                                                                                                                                                          |

#### Answer 2.

- (c) Indirect materials are those materials which are used in production process but, cannot be identified with the cost unit. They are allocated, and apportioned to or absorbed by cost units. Its examples are, grease and brushes etc., used in making furniture.

- (d) Selection is said to be a negative process because the number of candidates rejected is much more than that of selected candidates. In the selection process, the unsuitable candidates are eliminated at each step. Only a limited number of candidates are selected.

- (e) Contribution means right of an insurer who has paid claim under an insurance policy, asking other insurers to contribute to the payment proportionately.

#### Answer 3.

- (a) Refer to ICSE Paper, 2020, Answer 6 (b).  
 (b) Remedial training is the type of training designed to correct the mistakes and shortcomings in the work behaviour and job performance of employees.  
 (c) The non-recurring receipt of the business is called capital receipt. Capital receipts do not have any effect on profit or loss of the business. Capital receipts include amount received against sale of an asset, amount contributed as capital, amount received by way of loan, sale proceeds of long-term investments, legacy received in a non-profit organisation, recovery of loan granted by firm etc.  
 (d) (i) The bearer of the traveller's cheque does not have to carry cash with him while travelling. So he/she does not have to bear monetary risks during travelling.  
 (ii) With the help of a traveller's cheque, he/she may withdraw cash from a bank in any other city.

#### Answer 4.

- (a) Financing is an essential function of marketing because funds are required to meet fixed and working capital requirements of the business. As the company is required to pay dividend and interest at competitive rates, the funds procured must be judiciously used. Financing also facilitates the mechanism of marketing. As rest of all other departments are the cost centres, it is only marketing department which acts as the revenue center for the organisation and generates much needed finance. Hence, financing is an important function of marketing.

(b) Two advantages of rail transport :

1. **Cheap rates** : Rail transport is the cheaper mode of transport when compared with other modes of transportation like air transport and water transport.

2. **Most suitable for heavy and bulky commodities** : Railways can carry the heavy and bulky goods like engineering goods and other industrial raw-materials etc. Since this could carry the heavy quantities, this is most suitable for most of the businesses.

(c) According to the Right to Consumer Education, consumer must be made aware of his rights and remedies available under different laws. This will help to make consumers conscious and protect themselves against frauds by businessmen.

### SECTION-B

**Answer 5.**

(a) Expectations of the suppliers from a business organisation are discussed below :

1. **Reasonable purchase prices** : Suppliers expect that the business organisation is going to make purchases from them on reasonable prices and will not take undue advantage due to competition prevailing in the market amongst suppliers.

2. **Reasonable time** : Suppliers need time to supply goods. The processing of the order requires time like giving finishing touch to the products, packing etc. Thus, suppliers expect that reasonable time should be given to them by the business organisation for the supply of goods.

3. **Transparency** : Suppliers want that the dealings between them and the business organisation should be clear in terms of payment, time of delivery of goods, quality of goods, quantity of goods and treatment of defective material etc., so that, no dispute arises later at the time of payment.

4. **Promote healthy competition** : The primary objective of any business organisation is to earn profit, so, is the objective of suppliers. A firm can earn profit, either by cutting cost or, by raising the selling price. The raising of selling price is not possible in today's competitive environment. Hence, the lowering of cost is possible but upto a certain extent. The purchasers must not compel the suppliers to sell below their cost by showing them misleading offerings from the competitors.

5. **Long term relationship** : Suppliers expect long term relationship with the business organisation, so that they can have business for longer period with them. Good relations with the business

organisation also help suppliers in avoiding any disputes regarding defective goods, financial matters or otherwise.

**Answer 6.**

(b) Following are the various sales promotion techniques used by businesses to attract new customers :

1. **Samples** : They are used for the introduction of new products or existing products to the new customers. Samples are suitable for the products which can be given for use in the smaller quantities. These can be provided at particular places, distributed door to door or even can be mailed and provided in magazines and newspapers also.

2. **Premiums** : It acts as inducement to purchase products on the part of consumers. Under this, a different product is offered with the purchase of a particular product. It induces new users to purchase the product as, they might not have otherwise bought this particular product offered as a premium.

3. **Discounts** : This is usually offered by manufacturers to attract consumers of other brands to its product. Discounts may increase the purchases of the existing users and induce new customers towards the product on which it is applied.

4. **Coupons** : It is another method of offering a price reduction or a free package. For example, a coupon attached to the package may offer a buyer a second unit of the same item at a reduced price. The second item is naturally purchased from the retailer at such lower price. Thus, the sales of regular customers can be maintained and sometimes, it can even increase.

5. **Indoor display promotion** : These include counter cards, wall signs, banners and display bins which aims at reminding the customers constantly about the product.

**Answer 7.**

(a) Following is the importance of marketing :

1. **Importance for business organisation** : Marketing is that branch of business which find out people's needs and desires and seeks to satisfy it by manufacturing those products and services. It is through this meeting of the needs that the organisation generates revenues.

2. **Beneficial to consumers** : Marketing helps in informing consumers about the different varieties of products available, their usage, details, prices etc. Thus, marketing makes consumers knowledgeable.



**3. Contribution to economic development :** Marketing contributes to economic development of a country. This is so because marketing activities generate large scale employment in the form of retailing, whole-selling and distributing etc.

**4. Importance of marketing for service sector :** Services cannot be differentiated or put on shop shelves like a tangible product. They cannot be mass-produced and stored for future use. This is why services need marketing more than tangible goods. They need to be sold before they are provided or performed. This makes marketing more applicable in case of services.

**5. Creates employment opportunities :** Marketing is capable of providing employment to large section of the society including the professionals like painters, photographers, singers, cartoonist, musicians, models and people working in different advertising agencies.

(b) **1. Bank draft :** A bank draft is a type of order cheque, drawn by a bank on its another branch to make the payment to the person in favour of whom the draft has been drawn. It is most convenient and the cheapest method of remitting money from one place to another. For remitting money by a bank draft, a person has to obtain the bank draft from the bank by paying the amount he wants to remit by paying the prescribed commission. He may then handover the draft to the receiver for getting payment from the bank.

**2. Indemnity :** A contract of insurance is a contract of indemnity. The principle of indemnity is based on the idea that the assured in the case of loss shall only be compensated against the actual loss and in no case more than the value of the policy. Under the principle of indemnity, the insured is not allowed to earn profit out of insurance because the objective of insurance is to cover the perils, and not to be the means of profit making.

#### Answer 8.

(a) Following are the various types of budgets :

**1. Sales budget :** A sales budget is the most important budget and forms the basis of other types of budgets. It is a forecast of total sales, expressed in terms of money and quantity. The first step in the preparation of sales budget is to forecast as accurately as possible the anticipated sales during the budget period. For this purpose, various forecast techniques are used by the organisation.

**2. Production cost budget :** Production cost budget is a forecast of the production for the

budget period. It is prepared in two parts, viz., production volume budget for the physical units of the products to be manufactured and the cost of manufacturing budget detailing the budgeted costs. The main steps involved in the preparation of a production budget are production planning, consideration of capacity, integration with sales forecasts and inventory policies etc.

**3. Materials budget :** Materials requirement budget or commonly known as materials budget, assists the purchase department in suitably planning the purchases, fixing the maximum and minimum levels of materials, components etc. The preparation of material budget involves estimating the raw material requirements, scheduling the purchases of raw materials in required quantities at a required time and controlling the inventory of raw materials etc.

**4. Selling expenses budget :** This budget is the forecast of the cost of selling and distribution for the budgeted period. This budget includes all the selling expenditures on the promotion, maintenance and distribution of finished products.

**5. The Master Budget :** The master budget is a summary of the budget schedules in capsule form made for the purpose of presenting one report on the highlights of the budget forecast. The Institute of Cost Management Accountants, England, has defined it as "The summary budget, incorporating its component functional budgets, which is finally approved, adopted and employed." Thus, the master budget is a summarised form of all the budgets of a firm. This budget requires the approval of the Budget Committee before it is put into operation.

(b) Trade unions perform the following main functions :

**1. Protection :** Trade unions safeguard workers against all sorts of exploitation by the employer and political parties. A union provides protection from unfair labour practice and atrocities of management. It also tries to revise the status of workers in industry and society. Trade unions resist retrenchment of their members and help to ensure steady employment for workers. Unions serve as a check on arbitrary action by employers.

**2. Proper Standard of Living :** Unions attempt to secure for workers fair wages, proper working conditions and welfare facilities like health, housing, recreation and social security so as to ensure desirable living standard for them. An individual worker is not in a position to secure



fair wages and working conditions from the employer. He joins a union because union has a better bargaining power to get these economic benefits for workers.

**3. Economic Security :** Unions protect their members from various economic hazards such as illness, accidental injuries, unemployment. They secure compensation from employers. Unions also provide financial assistance to workers during distress.

**4. Sense of Belonging :** An ordinary worker has little sense of belonging in modern industry. By joining a union he can associate with fellow workers and gain social respect. Trade unions generate a spirit of self-respect and self-reliance among workers.

**5. Self-Expression :** Unions serve as a medium through which workers can express their grievance and suggestions to employers.

**Answer 9.**

(a) Following are the various merits of air transport over water transport :

1. Air transport is most suitable for carrying goods of perishable nature which require quick delivery. Water transport is not suitable for faster delivery of goods.
2. Air transport is also suitable for light goods of high value such as gold, diamonds, jewellery, etc.

Water transport is not suitable for the transport of such goods.

**3.** Air transport provides a regular, convenient, efficient and quick service, while water transport is seasonal. Some rivers or seas freeze during winter and some are not navigable due to falls or shallowness.

**4.** Water transport is possible only where there is a route while air transport helps in transporting goods to areas which are inaccessible by any other means of transport.

**5.** In the event of suspending of any other means of transport due to flood, earthquake or other natural calamities, air transport is the only means of transport which provides articles of necessity.

(b) Group Life Insurance is a scheme which provides Insurance cover on lives of several persons under one insurance policy or contract. It is generally provided to employees working under one employer. The Insurance on each life is however, independent of that on the other lives.

Three features of Group Life Insurance:

1. Provided to all employees without any evidence of insurability.
2. It provides risk coverage to the employees as long as they remain in the service of the employer..
3. The premium is generally paid jointly or by employee or the employer.

**Answer 10.**

**Trading and Profit and Loss A/c**  
for the year ending 31st December, 2000

| Date | Particulars                           | Amount (₹) | Date | Particulars                                  | Amount (₹) |
|------|---------------------------------------|------------|------|----------------------------------------------|------------|
|      | To Opening Stock                      | 2,730      |      | By Sales                                     | 23,120     |
|      | To Purchases                          | 15,410     |      | Less: Sales Returns (1,020)                  | 22,100     |
|      | Less : Purchase Returns (730)         | 14,680     |      | By Closing Stock                             | 3,140      |
|      | To Wages                              | 1,250      |      |                                              |            |
|      | To Gross Profit (Transfer to P/L A/c) | 6,580      |      |                                              |            |
|      |                                       | 25,240     |      |                                              | 25,240     |
|      | To Salaries                           | 2,000      |      | By Gross Profit transferred from trading A/c | 6,580      |
|      | To Discounts allowed                  | 580        |      | By Discounts received                        | 330        |
|      | To Rates                              | 750        |      |                                              |            |
|      | To Insurance                          | 210        |      |                                              |            |
|      | To Trade Expenses                     | 960        |      |                                              |            |
|      | To Net Profit                         | 2,410      |      |                                              |            |
|      |                                       | 6,910      |      |                                              | 6,910      |

**Balance Sheet of Pratim Pal***as on 31st December, 2000*

| Liabilities      |         | Amount<br>(₹) | Assets                |  | Amount<br>(₹) |
|------------------|---------|---------------|-----------------------|--|---------------|
| Capital          | 14,400  |               | Premises              |  | 7,500         |
| Less: Drawings   | (1,000) |               | Fixtures and Fittings |  | 1,560         |
|                  | 13,400  |               | Sundry Debtors        |  | 2,310         |
| Add: Net Profit  | (2,410) | 15,810        | Closing Stock         |  | 3,140         |
| Sundry creditors |         | 1,700         | Cash at Bank          |  | 2,350         |
|                  |         |               | Cash in Hand          |  | 650           |
|                  |         | 17,510        |                       |  | 17,510        |

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## QUESTIONS

### SECTION-A (40 Marks)

(Attempt *all* questions from this Section)

#### Question 1.

Distinguish between :

- (a) Internal and External stakeholders [2]
- (b) Direct Costs and Indirect Costs [2]
- (c) Private warehouse and Public warehouse [2]
- (d) Recruitment and Selection [2]
- (e) Overdraft and Cash Credit. [2]

#### Question 2.

- (a) What is Survey Method of Marketing Research ? Give one reason why it is mostly used. \*\* [2]
- (b) Why should 'Non-Trading Organisations' maintain books of accounts ? Name the accounts prepared by them. \*\* [2]
- (c) Give any four examples of Public awareness programmes organised for a better environment. [2]
- (d) State any two expectations of the Associates from a business enterprise. \*\* [2]
- (e) What do you mean by 'Semantic barrier' ? \*\* [2]

#### Question 3.

- (a) What are convenience products ? Give any two examples. [2]
- (b) What is semi-variable cost ? Give one example. [2]
- (c) What is meant by 'Revenue Expenditure' ? [2]
- (d) What is Direct Mail advertising ? Give any two advantages of it. \*\* [2]
- (e) State two disadvantages of internal recruitment. [2]

#### Question 4.

- (a) Mention any two qualities of a good salesman. \*\* [2]
- (b) Distinguish between Gratuity and Provident Fund. [2]
- (c) What is a bonded warehouse ? [2]

- (d) What do you mean by Mural advertising ? [2]
- (e) Mention any two main advantages of group life insurance to employees and employers. [2]

### SECTION-B (40 Marks)

Attempt *any four* questions from this Section.

#### Question 5

- (a) Explain any five measures taken to overcome barriers of communication. \*\* [5]
- (b) Explain expectations of the Government from a business organisation. [5]

#### Question 6.

- (a) 'Advertisement is a social waste.'—In this context explain the demerits of advertisement. [5]
- (b) What is 'standardization' of products ? List any three benefits of standardization. [5]

#### Question 7.

- (a) Explain any two methods of 'Off-the-job training.' [5]
- (b) Explain any five functions of the Central Bank of India. [5]

#### Question 8.

- (a) Explain any five principles of Insurance. [5]
- (b) Explain any five importance of warehousing. [5]

#### Question 9.

- (a) Discuss the role and concepts of Eco-efficiency and Eco-friendly technology. \*\* [5]
- (b) "Budgets are useful for management." Justify. [5]

#### Question 10.

The value of stock on 31<sup>st</sup> December, 2014 was ₹ 14,920. [10]

Prepare a Trading Account and a Profit and Loss Account for the year ended 31<sup>st</sup> December, 2014 and a Balance Sheet as at that date in the books of ABC enterprises.

#### Trial Balance

|                    | Dr.<br>(₹) |                  | Cr.<br>(₹)  |
|--------------------|------------|------------------|-------------|
| Drawings Account   | 7,000.00   | Capital Account  | 90,000.00   |
| Purchases          | 82,210.00  | Purchase Return  | 4,240.00    |
| Sales Return       | 1,820.00   | Sales            | 1,49,840.00 |
| Opening Stock      | 11,460.00  | Discount         | 180.00      |
| Salaries           | 6,280.00   | Sundry Creditors | 16,980.00   |
| Wages              | 8,560.00   |                  |             |
| Leasehold Premises | 25,000.00  |                  |             |

\*\* Answer is not given due to change in the present syllabus.

|                           |             |  |             |
|---------------------------|-------------|--|-------------|
| Rent, Rates and Insurance | 6,940.00    |  |             |
| Carriage Inward           | 2,310.00    |  |             |
| Office Expenses           | 9,520.00    |  |             |
| Plant and Machinery       | 24,000.00   |  |             |
| Light and Water           | 7,950.00    |  |             |
| Bills Receivable          | 1,240.00    |  |             |
| Sundry Debtors            | 38,970.00   |  |             |
| Cash at Bank              | 12,400.00   |  |             |
| Cash in Hand              | 2,210.00    |  |             |
| Office Furniture          | 3,500.00    |  |             |
| Travelling Expenses       | 9,870.00    |  |             |
|                           | 2,61,240.00 |  | 2,61,240.00 |

## ANSWERS

### SECTION-A

#### Answer 1.

(a) Refer to ICSE Paper, 2020, Answer 1 (d).

|     |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                             |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (b) | <b>Direct Costs</b><br><b>1.</b> Expenses (material, labour, other expenses) which are directly or easily traceable to a product or service are known as direct costs. E.g., wages incurred on production.<br><b>2.</b> Its components are direct material, direct labour and direct expenses.                                                                                                                  | <b>Indirect Costs</b><br>Indirect costs refer to those expenses on the item which are not directly chargeable to production. E.g., salary of supervisor, stationery of office, etc.<br>Its components are indirect materials, indirect labour and indirect expenses.        |
| (c) | <b>Private Warehouse</b><br><b>1.</b> Private warehouses are owned and operated by traders and manufacturers to store the goods which are manufactured or bought by them, until they are sold out.<br>Such warehouses are privately owned and their services are not available to other businessmen.<br><b>2.</b> They are generally located in rural and sub-urban areas where space is available at low-cost. | <b>Public Warehouse</b><br>Public warehouses operate to provide storage facilities to general public or any businessman in lieu of some fees.<br>They are located in place which are well connected by roads, railways etc.                                                 |
| (d) | <b>Recruitment</b><br><b>1.</b> Recruitment is the process of searching prospective candidates suitable for the job and motivate them to apply.<br><b>2.</b> Its objective is to create a pool of candidates.                                                                                                                                                                                                   | <b>Selection</b><br>Selection is the finalisation of candidates suitable for the job on the basis of certain tests.<br>Its objective is to choose the right person for the job.                                                                                             |
| (e) | <b>Overdraft</b><br><b>1.</b> Overdraft is a facility to a bank's customer to withdraw money in excess of what is available in the customer's account.<br><b>2.</b> The customer has to repay this extra withdrawal with interest within a short period of time.                                                                                                                                                | <b>Cash Credit</b><br>Cash credit is an arrangement by which the bank advances cash loans upto a specified limit to the customers against some security.<br>Interest is charged on the amount actually utilised by the borrower and not on the whole amount granted to him. |



**Answer 2.**

(c) Following are the examples of public awareness programmes :

1. Chipko Movement
2. Beej Bachao Aandolan
3. Ganga action plan
4. Silent Valley

**Answer 3.**

(a) The products which customer purchases frequently and with minimum efforts, are known as convenience products. For example, newspapers, bread, etc.

(b) Refer to ICSE Paper, 2019, Answer 3 (b).

(c) The expenditure incurred to carry on the normal operations of business, for the current year and to keep assets in satisfactory operating condition is known as revenue expenditure. Revenue expenditure includes cost of material purchased for consumption in the process of manufacturing or goods bought for resale, administrative expenses, selling and distribution expenses, wages and bonus, repairs and maintenance of fixed assets, depreciation, insurance premium, rent, rates and taxes, consumable stores and miscellaneous expenses, interest on loan and debentures and interest paid to creditors, etc.

(e) **Two disadvantages of internal recruitment are :**

**1. No opportunity for outside deserving candidates :** The major drawback of internal recruitment is that the enterprise may deprive competent, talented and deserving candidates from outside to get an opportunity to take up challenging jobs.

**2. Promotion of inefficient employees :** Sometimes, unsuitable persons use their source to get promotions. They are promoted from within the organisation without giving any importance to merit of the candidates.

**Answer 4.**

| (b) Gratuity                                                                                          | Provident Fund                                                                                                          |
|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1. It is the amount paid by an employer to an employee for the services rendered by him in a company. | Provident fund scheme deducts a small portion out of employees salary, to be paid to him at the time of his retirement. |
| 2. Gratuity is a scheme to motivate employees to serve for longer durations.                          | Provident fund instills the habit of savings among employees.                                                           |
| 3. Employee does not make contribution.                                                               | Contribution is made by both employer and employees compulsorily                                                        |

(c) Refer to ICSE Paper, 2020, Answer 4 (b).

(d) **Mural advertising :** Mural advertising is a kind of outdoor advertising which is made on the walls of the buildings and parks. The mural advertising is an old form of advertising but it can still be found in many areas.

(e) Following are the two benefits of group life insurance :

1. Insurance is provided to all employees without any evidence of insurability.

2. The employer can provide security cover for the employees at very low cost and he/she is not required to buy insurance policy for the employees individually.

**SECTION-B****Answer 5.**

(b) Expectations of the Government from a business are given below :

**1. Regular payment of taxes :** The very first expectation of government from a business is to receive regular and fair taxes on the profits of a business, so that the government will be able to continue the welfare activities of the nation.

**2. Fair trade practices :** Government expects a business to carry out fair trade practices which promote healthy competition in the economy. Such healthy competition is beneficial for all, i.e., the customers, business as well as government.

**3. No black marketing :** Government expects business, not to indulge in any kind of hoarding or black marketing. Such kind of activities create artificial scarcity in the economy.

**4. Support at times of calamities :** At the time of natural calamities, government expects the organisation to join hands with it and help the residents of the affected area to overcome the disaster.

**5. No trade relations with enemy nations :** Government expects that the business organisation should not engage themselves in trade with enemy countries through any channel. Trade relations with enemy countries is neither desirable nor expected.

**Answer 6.**

(a) Though advertising is very necessary for a business but sometimes, it is also considered a social waste because it also leads to a number of disadvantages to producers as well as to the consumers or society. The main disadvantages of advertising are as follows :

**1. Increase in cost of production :** Advertising increases the cost of the product, as the expenses incurred on it form the part of total cost of the

product. If the demand for the product is highly elastic, then a bigger part of the cost has to be borne by the producer, which will reduce his profit margins.

**2. Undermines social values :** Advertisement undermines social values by promoting materialism. It makes people bother about the design and appearance of a product more than its utility. Some advertisement even use indecent language and photos to promote their products which is highly objectionable.

**3. Deceptive :** Sometimes, advertising is used as an instrument of cheating. In order to impress the customers, false statements are given to reflect different virtues of a product. All these things adversely affect the public confidence in the advertising.

**4. Wastage of money :** The producers spend lakhs of rupees for the advertisement of their products.

**5. Concentration of economic power :** Because of advertisement, the firms have to spend a huge amount of money. These heavy expenditures can only be met by the very big firms. Consequently, the small firms cannot compete and fail. This leads to concentration of economic power in the hands of big firms which may be tempted to exploit the customer, by increasing the prices of their products unreasonably.

- (b) Standardization refers to the process of setting up basic measures or standards to which the products must conform and taking steps to ensure that the goods actually produced adhere to these standards. In standardization, the products are graded on the basis of certain qualities like design, weight, colour and size. Standardization facilitates the purchasing and selling of the products by description.

Benefits of standardization are :

1. It facilitate buying and selling of goods by sample or description. When goods are of standardised quality, customers do not insist on detailed inspection.
2. Standardised goods sell better and fetch a better price to the seller because customers have the prior idea of the quality of the goods.
3. Standardisation helps in raising finance because standardised products enjoy a ready market and they are readily accepted as collateral against the loans.

#### Answer 7.

- (a) Following are the two methods of 'off the job training' :

**1. Vestibule training :** Vestibule training is also known as "near the job training." New workers are trained with special machines or equipments in a separate location near the actual place of work, under practical work situation. This place is called a 'vestibule' and the actual work situation is duplicated here. An enterprise arranges vestibule training when the number of technical workers to be trained is very large, and the line managers are not in a position to spare time for providing training. This type of training lays more emphasis on learning than Production. Furthermore, trainees have an opportunity to get accustomed to the work routine and recover from their initial nervousness before going to the actual jobs. Workers are, thus, trained by qualified instructors, without hampering the actual work of production.

**2. Case study :** It is a written description of an actual organisation situation in the past wherein trainees are supposed to analyse and give their conclusions in writing. It is an ideal method to promote decision-making abilities within the constraints of limited data.

- (b) Some of the important functions of the Central Bank of India are described below :

**1. Issuing paper currency :** The Central Bank of India has the sole right of printing and issuing paper currency notes (except 1 rupee note and coin) in the country. No other body has this right. For issuing notes, the Central Bank has to maintain a reserve of gold, silver and foreign securities in certain fixed proportions, so as to inspire and retain the confidence of the people in the paper currency.

**2. Banker to the government :** As a banker to the government, the Central Bank makes and receives payments on behalf of the government whenever it becomes necessary. It also floats public debts and manages it for shorter or longer period, as the case may be, for the government. As a fiscal agent of the government, it receives loans, taxes and other payments from the public and manages the public debt on behalf of the government. As a financial adviser to the government, the Central Bank advises the government on economic, monetary, financial and fiscal matters, such as deficit financing, devaluation, trade policy, foreign exchange policy, etc.

**3. Banker's bank :** The Central Bank is the bank for all the commercial banks in the country. In other words, the relation of the Central Bank with other banks of the country is similar to that of a commercial bank with its customers. As a matter of legal obligation, the commercial banks

keep certain portion of their deposits with the Central Bank as cash reserves. As a banker's bank, the Central Bank also allows the facility of short-term loans and discounting of the bills to the commercial banks. The Central Bank, by notification, advises the commercial banks of the country in matters relating to their business, like fixation of rate of interests on deposits and loans, etc.

**4. Custodian of foreign currency :** The Central Bank is actually a sole custodian of the gold and foreign currency reserves of the country, so that these reserves can be utilised for making payments to foreign countries. The inflow and outflow of foreign exchange depends upon whether the position of balance of payments is favourable or otherwise. In view of the balance of payment position, the Central Bank advises the government to take appropriate measures in respect of exports and imports, so that the balance of payments may be favourable to the nation.

**5. Maintenance of exchange rate :** In order to maintain and promote the country's trade with other countries, the Central Bank makes every effort to maintain stable exchange rate with foreign currencies. For this purpose, it keeps a watch over country's exchange rates in relation to that of other countries and intervene when it deems necessary to maintain exchange rate.

#### Answer 8.

(a) Following are various principles which are must to be observed in insurance :

**1. Utmost good faith :** Utmost good faith is the primary principle of insurance. Both the parties involved in insurance contract should act in good faith towards each other and must disclose all the material facts for the benefit of each other. False information or non-disclosure of any important fact makes the contract voidable.

**2. Indemnity :** Indemnity means protection against loss due to damage or injury. The principle of indemnity is based on the idea, that in case of loss, the insured shall be compensated only against the actual loss and not more than the value of the policy. All types of contracts except life and personal accident insurance are contract of indemnity.

**3. Mitigation of loss :** The next essential principle of insurance is that in the event of some mishap to the insured property, the insured must take all necessary steps to mitigate the loss, *i.e.*, the insured must act in a prudent manner to control/reduce the loss in case of a mishap, just as one would do if the property is uninsured. If he

does not do so, the insurer can decline the claim of loss attributable to his negligence.

**4. Contribution :** Sometimes a property is insured with more than one company. When there are two or more insurance policy for one risk, the principle of contribution applies between the insurers. The objective of contribution is to distribute the actual amount of loss among different insurers who are liable for the same risk. In case of loss, any one insurer may make the payment to the assured, for the full amount of loss covered by the policy. After paying this amount, he is allowed to claim a contribution from his co-insurers in proportion to the amount which each has undertaken to pay in case of loss. The principle of contribution is applied to any insurance which is a contract to indemnity. It does not apply to life and personal accident insurance.

**5. Causa proxima or proximate cause :** This principle states that, when a loss is caused by two or more than two causes, then the nearest cause or the proximate cause should be taken into consideration.

This principle is found very useful when the loss is occurred due to a series of events. It means that in deciding whether the loss has arisen through any of the risks insured against, the proximate or the nearest cause should be considered. To take an illustration in one case where a policyholder sustains an accident while hunting. He was unable to walk after the accident and whilst lying on wet ground, he contracted pneumonia causing death ultimately. The proximate cause was considered to be the accident and not the pneumonia, the disease which was only a remote cause.

(b) Following are the five benefits of warehousing :

**1. Regular supply :** Goods which are produced seasonally (like wheat, rice, etc.) are stored in warehouse so that they can be supplied to the consumers throughout the year. In order to supply such commodities to the consumers throughout the year, their storage is very much necessary.

**2. Seasonal demand :** Many goods (woollen clothes, umbrella, raincoats, fans, etc.) are produced throughout the year but their demands are seasonal. Such goods must be stored and preserved until the beginning of the next season. To enable the producers producing such goods to work throughout the year, goods produced by them in off-season must be stored in warehouse.

**3. Storage of perishable goods :** Perishable goods like vegetables, fruits, eggs, etc., are stored in cold storage to enable the consumers to consume them without the risk of spoilage. In the



absence of warehouses, the market for the sale of perishable goods will become limited.

**4. Availability of goods :** When goods are produced at a distance from the consumers, they must be stored safely in the warehouses near the market so that the products can be made available to the customers at different places whenever and wherever they are required.

**5. Stabilisation of prices :** It is necessary to store the goods in the warehouses to avoid the violent fluctuations in prices, especially for those goods which are produced during a particular season.

**Answer 9.**

(b) A plan cannot be implemented without being specified in quantitative terms. A budget can be considered as the quantitative expression of the plan. It expresses a plan in terms of physical units or monetary units, and provides target to be achieved. It is not only essential for management of large business undertakings but also essential for the management of a very small business. Following are some points of importance of a budget for a management :

**1. Provides target :** A budget fixes the target in physical and financial terms. This helps the managers to understand their responsibilities precisely, by which they can take decisions to attain the set targets.

**2. Co-ordinates efforts :** A budget helps to co-ordinate the efforts of various divisions and departments. It is possible to fix the divisional or departmental targets so that all divisions or departments may work harmoniously by avoiding working at cross purposes.

**3. Provides higher efficiency :** A budget brings efficiency and stability in the working of an enterprise. It helps the management to achieve the most profitable combination of different factors of production. Budget also establishes divisional and departmental responsibility.

**4. Delegates authority :** A budget allows delegation of authority without loss of control. It permits participation of employees at all levels. When all plans are clearly expressed, they can be easily broken into manageable tasks. The manager may delegate these manageable tasks to his subordinates. This delegation can be combined with effective control as there is no ambiguity in the plan expressed by budget.

**5. Provides motivation :** A budget represents the goals to be achieved. It tells the management what efforts and results are expected out of them. It motivates them to work hard in order to achieve the target represented by the budget. Budget works as a source of motivation to the people.

**Answer 10.**

#### Trading A/c

for the year ending on 31<sup>st</sup> December, 2014

| Particulars             | Amount<br>(₹) | Particulars             | Amount<br>(₹) |
|-------------------------|---------------|-------------------------|---------------|
| To Opening Stock        | 11,460        | By Closing Stock        | 14,920        |
| To Purchases : 82,210   |               | By Sales 1,49,840       |               |
| Less : P/Return (4,240) | 77,970        | Less : S/Return (1,820) | 1,48,020      |
| To Wages                | 8,560         |                         |               |
| To Carriage Inward      | 2,310         |                         |               |
| To Gross Profit c/d     | 62,640        |                         |               |
|                         | 1,62,940      |                         | 1,62,940      |

#### Profit & Loss A/c

for the year ending on 31<sup>st</sup> December, 2014

| Particulars                  | Amount<br>(₹) | Particulars         | Amount<br>(₹) |
|------------------------------|---------------|---------------------|---------------|
| To Salaries                  | 6,280         | By Gross Profit b/d | 62,640        |
| To Rent, Rates and Insurance | 6,940         | By Discount         | 180           |
| To Office Expenses           | 9,520         |                     |               |
| To Light and Water           | 7,950         |                     |               |



|                        |        |  |        |
|------------------------|--------|--|--------|
| To Travelling Expenses | 9,870  |  |        |
| To Net Profit c/d      | 22,260 |  |        |
|                        | 62,820 |  | 62,820 |

**Balance Sheet***as on 31<sup>st</sup> December, 2014*

| Liabilities     |         | Amount<br>(₹) | Assets              |  | Amount<br>(₹) |
|-----------------|---------|---------------|---------------------|--|---------------|
| Capital         | 90,000  |               | Leasehold Premises  |  | 25,000        |
| Add: Net Profit | 22,260  |               | Plant and Machinery |  | 24,000        |
| Less: Drawings  | (7,000) | 1,05,260      | Bills Receivable    |  | 1,240         |
| Creditors       |         | 16,980        | Furnitures          |  | 3,500         |
|                 |         |               | Sundry Debtors      |  | 38,970        |
|                 |         |               | Cash at Bank        |  | 12,400        |
|                 |         |               | Cash in Hand        |  | 2,210         |
|                 |         |               | Closing Stock       |  | 14,920        |
|                 |         | 1,22,240      |                     |  | 1,22,240      |

GURUKUL

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt *all* questions from this Section)

#### Question 1.

*Distinguish between :*

- (a) Verbal Communication and Non-verbal Communication.\*\* [2]
- (b) Budget and Forecast. [2]
- (c) Fixed Cost and Variable Cost. [2]
- (d) Coupons and Premiums. [2]
- (e) Sales Promotion and Advertising. [2]

#### Question 2.

- (a) What is a 'Cash Budget' ? [2]
- (b) What do you understand by 'Formal Communication' ?\*\* [2]
- (c) What does a pay-in-slip contain ?\*\* [2]
- (d) Write a short note on ATM. [2]
- (e) What do you understand by 'Brand Promotion' ?\*\* [2]

#### Question 3.

- (a) How does financing facilitate the marketing activity ? [2]
- (b) Mention any four sources of external recruitment. [2]
- (c) Explain any two modes of purchasing goods. [2]
- (d) Explain any two disadvantages of Road Transport over Water Transport. [2]
- (e) How does an 'Organizational barrier' affect Effective Communication ?\*\* [2]

#### Question 4.

- (a) Give any two features of Consumer Protection Act 1986.\*\* [2]

#### Question 10.

Prepare a Trading, Profit & Loss A/c and Balance Sheet of Mr. A. Haridas for the year ended 31st March, 1980 from the following Trial Balance. [10]

The Closing Stock on 31.03.80 was valued at ₹ 40,000.

*Trial Balance*

|                    | Dr. (₹)  | Cr. (₹)  |
|--------------------|----------|----------|
| Capital            |          | 1,55,000 |
| Drawings           | 9,000    |          |
| Trade Expenses     | 12,000   |          |
| Cash in hand       | 750      |          |
| Cash at bank       | 22,700   |          |
| Land & Buildings   | 1,30,000 |          |
| Stock as on 1-4-79 | 35,000   |          |
| Purchases & Sales  | 75,000   | 2,50,000 |

- (b) State any two functions of a Trade Union. [2]
- (c) Explain 'Marketing Research' .\*\* [2]
- (d) What is Deferred Revenue expenditure ? Give an example. [2]
- (e) State any two advantages of Radio advertising. [2]

### SECTION-B (40 Marks)

Attempt *any four* questions from this Section.

#### Question 5

- (a) State any five expectations of employees from a business organization. [5]
- (b) Explain any five interpersonal skills that are required for effective communication.\*\* [5]

#### Question 6.

- (a) Explain the exchange functions of Marketing. [5]
- (b) Explain any two methods of Marketing Research.\*\* [5]

#### Question 7.

- (a) Explain the main functions of a Commercial Bank. [5]
- (b) Enumerate any five limitations of Television Advertising. [5]

#### Question 8.

- (a) Explain any five steps in the selection process of employees. [5]
- (b) Describe the importance of training to employees and employers. [5]

#### Question 9.

- (a) Explain the following principles of Insurance : [5]
  - (i) Utmost good faith (Uberrimae fidei)
  - (ii) Doctrine of subrogation.
- (b) What is meant by recycle ? How do environmental values help a common man ?\*\* [5]

\*\* Answer is not given due to change in the present syllabus.

|                                    |          |          |
|------------------------------------|----------|----------|
| Returns                            | 2,800    | 2,000    |
| Carriage inwards                   | 1,500    |          |
| Carriage outwards                  | 3,500    |          |
| Debtors & Creditors                | 48,000   | 25,000   |
| Bills Receivables & Bills Payables | 22,000   | 10,500   |
| Furniture & Fixtures               | 15,400   |          |
| Discount allowed                   | 1,500    |          |
| Wages                              | 25,000   |          |
| Salaries                           | 19,850   |          |
| Advertisement                      | 15,000   |          |
| Rent, Rates & Taxes                | 3,500    |          |
|                                    | 4,42,500 | 4,42,500 |

## ANSWERS

### SECTION-A

**Answer 1.**

(b)

| Budget                                                                  | Forecast                                                                           |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1. Budget is the financial representation of a business plan or target. | It is the estimation of future trends and outcomes based on past and present data. |
| 2. It begins when forecasting ends.                                     | It is a preliminary step for budgeting.                                            |

(c)

| Fixed cost                                                                                 | Variable Cost                                                                                  |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 1. The cost which do not change with the change in the size of output during short period. | The costs which vary or change with the change in the size of output are called variable cost. |
| 2. Fixed costs are definite, they are incurred whether the units are produced or not.      | Variable costs are incurred only when the units are produced.                                  |

(d)

| Coupons                                                                                                    | Premiums                                                                                                       |
|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 1. It represents offering a price reduction or a gift on the purchase of a product.                        | It is the offer on article at no extra cost or at a very nominal price on the purchase of a specified product. |
| 2. For example, coupons are distributed to stimulate the prospective users to buy that particular product. | For example, one Lux toilet soap is offered free on purchase of a 1 kg Surf detergent powder.                  |

| <b>(e)</b>                                                                                                                                              | <table> <tr> <th>Sales Promotion</th><th>Advertising</th></tr> <tr> <td>1. Sales promotion is the set of activities that spread a word about the product to encourage customers for purchasing particular products or services.</td><td>Advertising is a technique of driving public attention towards a product or service, through paid network.</td></tr> <tr> <td>2. The objective of sales promotion is to push short-term sales</td><td>The objective of advertising is to build brand image of the producer and his product to boost sales.</td></tr> </table> | Sales Promotion | Advertising | 1. Sales promotion is the set of activities that spread a word about the product to encourage customers for purchasing particular products or services. | Advertising is a technique of driving public attention towards a product or service, through paid network. | 2. The objective of sales promotion is to push short-term sales | The objective of advertising is to build brand image of the producer and his product to boost sales. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Sales Promotion                                                                                                                                         | Advertising                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |             |                                                                                                                                                         |                                                                                                            |                                                                 |                                                                                                      |
| 1. Sales promotion is the set of activities that spread a word about the product to encourage customers for purchasing particular products or services. | Advertising is a technique of driving public attention towards a product or service, through paid network.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |             |                                                                                                                                                         |                                                                                                            |                                                                 |                                                                                                      |
| 2. The objective of sales promotion is to push short-term sales                                                                                         | The objective of advertising is to build brand image of the producer and his product to boost sales.                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |             |                                                                                                                                                         |                                                                                                            |                                                                 |                                                                                                      |

**Answer 2.**

- (a) A 'Cash Budget' is a statement of estimated cash receipts and the estimated cash payments over a specific period of time. It indicates the probable cash position as a result of planned operations.
- (d) An ATM is a device located on or off the bank's premises to receive and give out cash round the clock. It is a specialised terminal connected to bank's central computer via public telephone network. ATM allows access to a wide range of banking transactions by inserting magnetic strip plastic card containing account details and keying in a personal identification number.

**Answer 3.**

- (a) Financing is an important function of marketing. Marketing function has an important influence on the financial policies of the firm with regards to cash and credit sales. Finance is required to keep stock, to meet transport, storage and other costs and grant credit.
- (b) Four sources of external recruitment are :
- Media advertisements
  - Employment exchanges

3. Placement agencies

4. Campus interviews.

(c) Two modes of purchasing goods are :

**1. Purchase through inspection :** Purchasing after personal examination of whole lot of goods at sellers place.

**2. Purchase by sample :** Purchasing after examining a specimen of goods on the assumption that the sample represents the entire lot.

(d) 1. Waterways are the gift of nature and investment required in maintenance is practically nil, while roadways requires heavy maintenance expenditure.

2. Road transport is not suitable for international trade and even for long distances. It also has more chance of accidents.

**Answer 4.**

(b) All functions, concerning the well being of workers, are mostly regulated by trade unions. The two functions performed by trade unions are :

1. Trade unions ensure adequate wages, better working conditions, better treatment, a reasonable share in the profits and a share of control in the management of the industry.

2. Trade unions help the workers in case of sickness and accident and give them financial support during the period of unemployment.

(d) Refer to ICSE paper, 2019 Answer Q. 3 (a)

(e) Two advantages of radio advertising are :

1. People can listen to the advertisement while in transit or work because full attention is not required.

2. It provides wide appeal even for illiterate people.

## SECTION-B

**Answer 5.**

(a) 1. **Fair Wages :** Employees of an organisation expect fair remuneration for the work done by them. If the workers or employees do not get salaries or wages proportionate to work done by them, their efficiency will be affected which in turn would result in lower product quality and disloyalty to the organisation in terms of continuity with the job. The moment the employee gets proper and better remuneration in some other organisation, he will leave his job from the present organisation.

2. **Good Working Conditions :** Employees of an organisation expect their working conditions to be proper. It means, that the environment in which the employees work, should be such that they are able to work with their full potential. For example, the employee working in a shoe unit during summers with fan or cooler will have

higher efficiency than the employee working without fan or cooler. Similarly, proper sitting place, canteen and water facilities should be provided to the employees. Employees also expect that immediate and proper treatment should be given to them at the time of accidents.

3. **Organisational Culture :** Employees expect that the organisational ambience and culture should be amicable. They expect that the relationship between boss and subordinate should not be autocratic and imposed. If it is imposed, employees will work unwillingly and this will definitely affect their efficiency and quality of work.

4. **Participation in Management :** Employees expect that their demands should be considered favorably. To communicate their demands to top level management or Board of Directors, they expect that a person (employee) representing them should hold a post on top level management.

5. **Training and Development :** Employees dislike remaining stuck to the same position forever. Instead, they want themselves to go on to the superior position for which they require proper training. Employees expect the organisation to look into this need and make proper arrangements for their training and development. They also expect to get their due promotions.

**Answer 6.**

(a) Exchange function of marketing include buying and selling of goods and services. These functions have a common features in one respect, that they are directly concern with the change in ownership of goods. Once the right type of profit and service is developed it must be transfered to customers. Product are brought from different sources to meet diverse needs of consumers. The products are sold in small lots over a period of time. Thus buying and selling are the activities of exchange.

**Answer 7.**

(a) 1. **Accepts deposit :** The bank takes deposits in the form of saving, current, and fixed deposits. The surplus balances collected from the firm and individuals are lent to the needy on interest.

2. **Provides loan advances :** Another critical function of this bank is to offer loans and advances to the entrepreneurs and business people and collect interest. For every bank it is the primary source of making profit. In this process bank retain small portion of deposits as a reserve and offers (lends) the remaining amount to the borrowers as demand loans, overdraft, cash credit, and short-run loans etc.

3. **Create credit :** When a customer is provided with credit or loan, they are not provided with liquid cash. First, a bank account is opened for



the customer and then the money is transferred to the account. This process allows a bank to create credit.

**4. Discounting bills of exchange :** It is a written agreement acknowledging the amount of money to be paid against the goods purchased at a given point of time in future. The amount can also be cleared before the quoted time through a discounting method of a commercial bank.

**5. Overdraft Facility :** It is an advance given to a customer having the current account to overdraw up to the given limit.

**6. Purchasing and Selling of the Securities :** The bank offers their clients with the facility of selling and buying the securities on their behalf.

(b) Television is a booming medium of advertising which is very effective due to its power to captivate the viewers. But it has some limitations also :

1. Television advertising is very costly and only well established firms can afford it.
2. Television advertisements have a very short life and back reference is not possible.
3. There is a lack of flexibility as the immediate changes in the advertisement are not possible.
4. The duration of a commercial advertisement is only for a few seconds, which might be very less to create an impact.
5. Viewers often find it difficult to assimilate a large number of advertisements within a short span of time.

#### Answer 8.

(a) Selection procedure is used for the purpose of ascertaining whether the candidates possess the qualifications or not, which are required for the job. Generally, the following steps are used in the selection of employees.

**1. Preliminary interview :** This is essentially conducted to check whether the candidate fulfills the minimum qualifications. The preliminary interview eliminates the totally unsuitable candidates.

**2. Receiving application :** Application form contains columns for name, age, address, education, job experience, etc., of candidates. It provides a detailed and permanent record about the candidate. It also reflects the candidate's suitability and interest for the job.

**3. Selection tests :** After scrutinising the applications, a list of those candidates is prepared who will be tested and interviewed. These tests are based on the assumption that human traits and work behaviour can be predicted by sampling. Tests are more useful in identifying and eliminating candidates. The main types of selection tests are intelligence test, aptitude tests, interest tests, personality tests, etc.

**4. Group discussion :** Group discussion is a useful means of judging the leadership ability

and social traits of the candidates. In a group discussion, a problem is given to a small group consisting of 8-10 candidates. Members of the group discuss about the problems and interact with one another. The observer guides the discussion and judges on the basis of observation made.

**5. Final interview :** The candidates who are found suitable after tests are called for final interview. It involves face to face conversation between the employer and the candidate. The selectors ask job related and general questions.

(b) Training is useful for both employers and employees. A well-trained employee is an asset to the enterprise. Training enables the employee to get job security, higher earnings and promotion. It increases the productivity of the workers and the output for the organisation. The main advantages of training are as follows :

**1. Improvement in Production and Productivity:** Training helps to improve the efficiency and productivity of employees. Well-trained employees make better use of materials and machinery. Wastage is reduced and as a result quality and quantity of production becomes higher.

**2. Lesser Supervision :** Well-trained employees, have the knowledge about their jobs and equipments and can do their work efficiently. Thus, the training reduces the need of supervision to bare minimum.

**3. Maximum Utilisation of Materials and Machines :** Training teaches the employees the method of doing their job in the best possible manner. They have knowledge of operating machines and equipments and handle them properly and methodically. As a result of it, they make the best possible utilisation of materials and machines.

**4. Better Safety :** Human error or negligence is the major cause of accidents in the industry. Due to the operational efficiency of the trained workers and the complete knowledge about the working of the plants and machines, chances of accidents are reduced.

**5. High Morale :** Effective training improves the self-confidence and job satisfaction of employees. Well-trained employees take greater interest in their job and derive a sense of security. By boosting the morale of employees, training helps to reduce absenteeism and improve labour turnover.

#### Answer 9.

(a) **1. Utmost good faith (Uberrimae fidei) :** Utmost good faith is the primary principle of insurance. An insurance contract is based on utmost good faith on the part of both the parties. It is the legal duty of the proposer to disclose all the material facts about the subject matter. If the proposer conceals or hides any material facts, the insurer can repudiate the contract of insurance.

**2. Doctrine of subrogation :** It implies that after indemnifying the insured for his loss, the insurer becomes entitled to all the rights and remedies relating to the property insured. The insurer

shall step into the shoes of the insured. Doctrine of subrogation is applicable to all contracts of indemnity but not to life insurance.

**Answer 10.**

**Trading A/c**

*for the year ended on 31<sup>st</sup> March, 1980*

| Particulars                                      | Amount<br>(₹) | Particulars                       | Amount<br>(₹) |
|--------------------------------------------------|---------------|-----------------------------------|---------------|
| To Opening Stock                                 | 35,000        | By Sales : 2,50,000               |               |
| To Purchases : 75,000                            |               | Less : Sales Returns <u>2,800</u> | 2,47,200      |
| Less : Purchase Returns <u>2,000</u>             | 73,000        | By Closing Stock                  | 40,000        |
| To Carriage Inwards                              | 1,500         |                                   |               |
| To Wages                                         | 25,000        |                                   |               |
| To Gross Profit transferred to Profit & Loss A/c | 1,52,700      |                                   |               |
|                                                  | 2,87,200      |                                   | 2,87,200      |

**Profit & Loss A/c**

*for the year ended on 31<sup>st</sup> March, 1980*

| Particulars                                | Amount<br>(₹) | Particulars                                  | Amount<br>(₹) |
|--------------------------------------------|---------------|----------------------------------------------|---------------|
| To Trade Expenses                          | 12,000        | By Gross Profit transferred from Trading A/c | 1,52,700      |
| To Carriage Outwards                       | 3,500         |                                              |               |
| To Discount Allowed                        | 1,500         |                                              |               |
| To Salaries                                | 19,850        |                                              |               |
| To Advertisement                           | 15,000        |                                              |               |
| To Rent, Rates & Taxes                     | 3,500         |                                              |               |
| To Net Profit Transferred to Balance Sheet | 97,350        |                                              |               |
|                                            | 1,52,700      |                                              | 1,52,700      |

**Balance Sheet**

*as on 31<sup>st</sup> March, 1980*

| Liabilities                    | Amount<br>(₹) | Assets               | Amount<br>(₹) |
|--------------------------------|---------------|----------------------|---------------|
| Capital 1,55,000               |               | Land & Buildings     | 1,30,000      |
| Add : Net Profit <u>97,350</u> |               | Furniture & Fixtures | 15,400        |
| 2,52,350                       |               | Debtors              | 48,000        |
| Less : Drawings <u>9,000</u>   | 2,43,350      | Bills Receivable     | 22,000        |
| Creditors                      | 25,000        | Closing Stock        | 40,000        |
| Bills Payable                  | 10,500        | Cash in Hand         | 750           |
|                                | 2,78,850      | Cash at Bank         | 22,700        |
|                                |               |                      | 2,78,850      |

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# COMMERCIAL APPLICATIONS

# 2020

## QUESTIONS

**(Two Hours)**

Answers to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

**Section A is compulsory.** Attempt **any four** questions from **Section B**.

The intended marks for questions or parts of questions are given in brackets [ ].

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

State one difference between each of the following:

- (a) Marketing and Selling [2]
- (b) Skimming Pricing and Penetrating Pricing [2]
- (c) Central Bank and Commercial Bank [2]
- (d) Recruitment and Selection [2]
- (e) Fixed Cost and Variable Cost [2]

#### Question 2.

- (a) State two essentials of a good brand. [2]
- (b) Mention any two components of product mix. [2]
- (c) What do you mean by Walk-in-Interview? [2]
- (d) Why is Human Relations an important element in public relations? [2]
- (e) Why has tourism led to the destruction of the ecosystem? [2]

#### Question 3.

- (a) Mention any two features of Receipts and Payments Account. [2]
- (b) State any two advantages of external recruitment. [2]
- (c) Mention any two features of a Balance Sheet. [2]
- (d) Explain any two disadvantages of advertising. [2]
- (e) What do you mean by Semi-fixed cost? Give an example. [2]

#### Question 4.

Give a reason either for or against each of the following statements:

- (a) Bank draft cannot get dishonoured. [2]
- (b) Internal sources of recruitment restrict the choice available to the management. [2]
- (c) It is marketing which has converted yesterday's luxuries into today's necessities. [2]
- (d) The scope of Public Relations is narrow. [2]

- (e) "The capital provided by the owner is treated as a liability of the firm". [2]

Answer with reference to the concept of Accounting.

### SECTION-B (60 Marks)

(Attempt **any four** questions from this Section)

#### Question 5.

- (a) Explain the five features of advertising. [5]
- (b) Explain any two features of marketing. [5]
- (c) Explain any five qualities of a good salesman. [5]

#### Question 6.

- (a) Explain any five reasons for the increasing importance of service. [5]
- (b) Briefly explain the money measurement principle and the dual aspect principle of accounting. [5]
- (c) Explain any five functions of the Central Bank. [5]

#### Question 7.

- (a) What do you mean by the development function of Human Resource Management? Discuss its various activities. [5]
- (b) Discuss any two reasons for the rapid growth of Public Relations. [5]
- (c) What is meant by Recurring Deposit Account? Explain any four agency functions of the Commercial Bank. [5]

#### Question 8.

- (a) Explain: [5]
  - (i) The Chernobyl Disaster
  - (ii) Chipko Andolan Movement
- (b) Explain any five steps involved in the selection of employees. [5]
- (c) Explain Vestibule training and the Lecture method of training. [5]

#### Question 9.

#### CASE STUDY

Mr. Surinder Singh, CEO of a retail chain of shoe stores company, planned out to have workforce - both in administration and management - as a mix of experience and fresh blood. He made a thorough revision of responsibilities of the administrative and management staff by way of transferring and creating promotion for potential employees. He approached technical and management institutes for recruitment of fresh blood managers. They were offered jobs on completion of their studies. He contacted the heads

of different management institutes and recruited the employees from there for Junior Manager's post.

In framing the transfer policy, Mr. Singh took the principle of balanced workload at different branches of the organisation for the improvement of quality of services.

Promotion was given to the experienced and existing employees above forty years of age after reviewing performance appraisal and potential appraisal. Wherever necessary, he instituted training program for them to cope up with the latest requirements of the organisation. Some of these employees were sent to acquire necessary higher qualifications from the MBA colleges in part-time evening programs.

Newly appointed employees from management and technical institutes were put into in-house orientation training for an overall understanding of the nature of work and its relation to the nature of business. A systematic orientation programme enabled the new employees to adjust quickly to the new surroundings and people.

- (a) State the source of recruitment that has been followed by Mr. Singh for the recruitment of fresh blood managers. Explain the method involved. [5]
- (b) What is meant by refresher training? (Write three points) [5]

Distinguish between transfer and promotion. (State two points)

- (c) What sort of programs for the newly recruited and existing employees have been initiated for their improvement? [5]

#### Question 10.

Amazon and Flipkart, India's two leading e-commerce marketplaces are engaged in a fierce price war. Amazon continues to offer aggressive discounts on popular models such as the Apple iPhones, Samsung smartphones and television sets even after its own sale got over in order to match the offers in Flipkart's sale and intends to continue doing this till Flipkart's sale ends, according to a senior executive with the company. With reference to the above:

- (a) Name the type of non-traditional marketing Amazon and Flipkart are engaged in. Explain briefly the non-traditional marketing adopted by Amazon and Flipkart. [5]
- (b) What kind of pricing strategy are both Flipkart and Amazon following? Explain briefly the pricing strategy adopted by Flipkart and Amazon. [5]
- (c) Explain the Introduction and Decline Stage of Product Life Cycle. [5]

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) The difference between Marketing and Selling is as under :

| S. No. | Basis of Difference | Marketing                                                                                                        | Selling                                                                                                                      |
|--------|---------------------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Definition          | Marketing is a process of understanding the customers need and introducing a product by following pull strategy. | Selling is a transfer of product from the manufacturer to the customer in exchange for the money by following push strategy. |
| 2.     | Nature              | Marketing has long-term objectives for growth and profitability of business.                                     | Selling is a short-term process, which emphasises on profit maximization only.                                               |

- (b) The difference between Skimming Pricing and Penetrating Pricing is as under :

| S. No. | Basis of Difference | Skimming Pricing                                                                                                                                                                                              | Penetrating Pricing                                                                                                                                                                     |
|--------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     |                     | In the skimming pricing a very high price for the new product is set so that in the initial stages the cream of demand may be skimmed and the investment made in the product development is quickly realised. | The penetrating pricing involves setting a low price for the new product in the initial stage so as to make the brand popular in a short span of time and to maximize the market share. |
| 2.     |                     | Skimming pricing is used when the demand for the product is inelastic.                                                                                                                                        | Penetration pricing strategy is put into practice when the demand for the product is relatively elastic.                                                                                |



- (c) The difference between Central Bank and Commercial Bank is as under:

| S. No. | Basis of Difference | Central Bank                                              | Commercial Bank                       |
|--------|---------------------|-----------------------------------------------------------|---------------------------------------|
| 1.     | Position            | It is the apex institution of a country's banking system. | It is one of the banks in a country.  |
| 2.     | Main Client         | It is a banker to the government.                         | It is a banker to the general public. |

- (d) The difference between Recruitment and Selection is as under:

| S. No. | Basis of Difference | Recruitment                                                                                                                  | Selection                                                                                                             |
|--------|---------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 1.     |                     | It involves searching for prospective employees and stimulating them to apply for job.                                       | It involves comparing and evaluating candidate in order to choose suitable candidate out of the potential candidates. |
| 2.     |                     | It is said to be a positive process because it seeks to attract a large number of candidates from which choices can be made. | It is said to be a negative process because it seeks to eliminate less qualified candidate at each step.              |

- (e) The difference between Fixed Cost and Variable Cost is as under:

| S. No. | Basis of Difference | Fixed Cost                                                                                       | Variable cost                                                                  |
|--------|---------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 1.     | <b>Behaviour</b>    | The cost which remains the same, regardless of the volume of production, is known as fixed cost. | The cost which changes with change in output is considered as a variable cost. |
| 2.     | <b>Control</b>      | Fixed costs are not controllable in the short-run.                                               | Variable costs are controllable in the short-run.                              |

### Answer 2.

- (a) The two essentials of a good brand are:
1. The brand name should be brief and simple and should be easy to pronounce, spell and remember.
  2. It should suggest the utility of the product.
- (b) The two components of the product mix are:
1. Range of the product to be offered for sale
  2. Package of the product
- (c) A walk-in interview is also known as an open job interview. It is an interview for employment where companies accept job applications from prospective employees without any prior appointment and give opportunities to get interviewed and selected for the job.
- (d) Human relations are the most important element of public relations because public relation is getting along with the people or public both internally and externally. Every person employed in an organisation is a human being. Each person who works in an organisation has to get along with others. He is expected to understand people and take interest in their progress.
- (e) Tourism led to the destruction of the ecosystem because tourism and recreation facilities puts enormous pressure on an area which leads to soil erosion, increased pollution, loss of natural habitat, increased pressure on endangered species. It also forces local people to compete for the use of critical resources.

### Answer 3.

- (a) Two features of the receipt and payment account are:
1. All the cash receipt both of revenue and capital nature is shown on the debit side irrespective of the fact whether they are relate to the current year, past year or future period.
  2. It is a real account. Therefore the rule of real account *i.e.* debit what comes in and credit what goes out is followed while preparing it.
- (b) Two advantages of the external source of recruitment are:
1. External sources offer wider choice in the selection of the candidates because a large number of potential candidates apply for the job.
  2. Recruitment of candidate from outside brings fresh thinking and creativity. It helps any organisation to become competitive.
- (c) The two features of the Balance Sheet are:
1. A Balance Sheet is always prepared on a particular date.
  2. Assets are shown on the right hand side and liabilities are shown on the left hand side.

- (d) The two disadvantages of the advertisement are:
1. Advertisement increases the price of the products as expenses incurred on advertisement are passed on to the consumer.
  2. In order to impress the people false statements and exaggerated claims are made in advertisements. Advertisement offer scope for fraud and deception which could mislead customers.
- (e) A semi fixed cost is the cost which vary but not in direct proportion to the changes in the volume of production. They are the combination of fixed and variable costs, for example the rent of the telephone is a fixed cost whereas the charges for the call made during the month is variable cost.

#### Answer 4.

- (a) **For:** The draft amount is taken in advance by the bank before issuing it. Therefore, the demand draft cannot be dishonoured.
- (b) **For:** Internal sources of recruitment restrict the choice available to the management because the vacancies are filled from the existing pool of employees in the company by promotion, transfer and demotion.
- (c) **For:** Marketing focuses on improving the quality of living of people by providing a wide variety of quality products and services at reasonable price. It brings awareness about new products and their uses. It has converted yesterday's luxuries into today's necessities by raising the standard of living of consumers.
- (d) **Against:** Scope of public relations is very wide. It deals with diverse interest of the stakeholders of a business organisation i.e., employees, stockholders, consumers, distributors, suppliers, Government, community and media. Professional practice of public relations requires knowledge of communication, Art, psychology, social psychology, sociology, economics and the principles of management and ethics.
- (e) **For:** Capital provided by the owner is treated as the liability of the firm because owner and the firm are independent from each other. They have independent existence so any capital provided by the owner has to be returned by the firm.

### SECTION-B

#### Answer 5.

- (a) Five features of the advertisement are:
1. **Non Personal:** It is a non-personal form of communication as no face to face contact is involved between the advertiser and customer.
  2. **Method of Mass Communication:** It is a method of mass communication as the message from advertisement is directed to a large number of persons.

3. **Paid Communication:** It is a paid form of communication as the advertiser has to pay for the space or to the media which convey the message.

4. **Information and Persuasion:** The purpose of the advertisement is to inform customer about some products and services and to persuade them to buy them.

5. **Identified Sponsor:** It is issued by identified sponsor as the name of the advertiser is mentioned in the advertisement.

- (b) Two features of the marketing are:

1. **Marketing Creates Utility:** It creates time, possession, and place utilities. Time utility is created by preserving goods for use in future. Possession utility is created by transferring products and services from producer to consumers while place utility is created while carrying goods to places where they are needed most.

2. **Marketing is Customer Oriented:** The main objective of the marketing is to identify and satisfy the wants of present and potential customers. It starts and end with consumers. All the marketing activities are focussed on consumers.

- (c) Five qualities of a good salesman are:

1. **Good Physique:** A good salesman must have sound health, good appearance, cheerful disposition and an impressive voice. He should be properly dressed. He should be mentally and physically fit for doing hard work.

2. **Cheerful:** Pleasing manners and a smiling face are necessary for a successful salesman. He should be polite, courteous, friendly and cooperative.

3. **Sincere:** A good salesman is always loyal and committed to his work. He is dependable and courageous.

4. **Communication:** Communication skill is an asset for the salesman. He should be able to speak freely, clearly and in a well-pitched voice. He must be a person who has a natural ability for conversation.

5. **Determination:** The salesman must have a sense of determination to secure the customer. He should not lose confidence and give up the customer easily.

#### Answer 6.

- (a) Reasons for increasing the importance of service are:

1. **Basic Services:** In any country, many services such as hospitals, educational institutions, post and telegraph services, police stations, courts, village administrative offices, municipal corporations, defence, transport, banks and insurance companies, are required. These can be considered as basic services. In a developing country like India, the government has to take responsibility for providing these services which result in rising demand of services.

**2. Development of Primary and Secondary Sector:** The development of agriculture and industry leads to the development of services such as transport, trade and storage. The greater the development of the primary and secondary sectors, the more would be the demand for the services.

**3. Rise in Income Levels:** As income levels rise, certain sections of people start demanding many more services like eating out, tourism, shopping, private hospitals, private schools and professional training centres.

**4. Rise in Information Technology:** Over the past decade, certain new services, such as those based on information and communication technology have become important and essential. The production of these services has been rising rapidly.

**5. Globalisation:** Due to globalisation, people have become aware of new services and activities, and communication because of which the tertiary sector has gained importance.

- (b) **1. Money Measurement Principle:** The money measurement concept states that a business should only record an accounting transaction if it can be expressed in terms of money. This means that the focus of accounting transactions is on quantitative information, rather than on qualitative information. Thus, a large number of items are never reflected in a company's accounting records, which means that they never appear in its financial statements.

For example, the retirement of the chairman of the company cannot be recorded because it is not possible to measure the monetary effect of retirement.

Money measurement concept helps to make accounting records homogeneous, relevant, simple and understandable.

**2. Dual Aspect Principle:** According to this principle, every business transaction has a double (dual) effect on the business. This double effect can be recognized only by recording both the aspects of every transaction i.e., debit and credit. If one account is debited, any other account must be credited and vice-versa. The system of recording transactions on the basis of this principle is known as 'Double Entry System'. Owing to this principle, the two sides of the Balance Sheet are always equal.

The following accounting equation will always hold good at any point of time.

$$\text{Assets} = \text{Liabilities} + \text{Capital}$$

OR

$$\text{Capital} = \text{Assets} - \text{Liabilities}$$

Whenever a transaction is recorded, it must be recorded in two or more accounts to balance the equation. If a transaction increases or decreases

one side of the equation, it will also decrease or increase the other side of the equation by the same amount.

- (c) The five functions of the Central Bank are:

**1. Issue of Currency Notes:** The Central Bank has monopoly over issuing currency notes in India. In order to inspire public confidence in paper currency, the Central Bank keep reserves of gold, silver, etc., for issuing currency notes. Central Bank is given monopoly of note issue in order to maintain uniformity in currency and to lend prestige to the currency system of the country.

**2. Banker to the Government:** The Central Bank acts as a banker, agent and advisor to the Government. As a banker, it receives and makes payments on behalf of the Government. It advises the Government in matters relating to monetary and banking policies. It also represents the Government in international conferences on monetary and banking matters.

**3. Banker's Bank :** The Central Bank acts as a bank for all commercial banks in the country. When a commercial bank needs funds it can obtain loans and re-discount its bills with the Central Bank. Therefore, Central Bank is called as 'lender of last resort'. Commercial banks are required to keep a cash reserve with the Central Bank so as to control credit in the country. The Central Bank advises commercial banks on matters relating to their business.

**4. Credit Control :** The Central Bank exercises both qualitative and quantitative control over credit granting capacity of commercial banks in order to maintain stability in prices and foreign exchange. In the absence of such control, commercial banks may lend too much or too little for unproductive purposes. They may also charge very high rates of interest.

**5. Custodian of Foreign Currency Reserves :** The Central Bank is the sole custodian of gold, foreign exchange and all other reserves of the country. It manages these reserves judiciously so as to overcome difficulties in balance of payments and to stabilise the exchange rates.

#### Answer 7.

- (a) Development function of human resource helps in improving the knowledge skills and aptitude of the employee so that they can perform their roles and responsibility efficiently. Various activities involved in the development function of human resource are:

**1. Training:** It is the process by which employee learn knowledge and skills for self as well as organisational development.

**2. Executive Development:** It is the process of developing managerial talent through appropriate program.



**3. Career Planning:** It involves the planning of the career of employees and implementing the career plan so as to fulfil the career aspirations through promotions and transfers.

**4. Performance Appraisal:** It implies systematic evaluation of employees performance on the job and their potential for development.

(b) Two reasons for the rapid growth of public relations are:

**1. Communication Gap:** The communication gap between the organisation and the public is increasing day by day. Public relation function is required to bridge this gap by explaining organisational policies and actions to public and bring about better understanding.

**2. Recognition of Social Responsibility:** Corporates have now started to realise that they have social responsibility to serve public which includes financial contributions to the community, social welfare, health and education. This leads to the rapid growth of public relations.

(c) Recurring deposit account is the account in which the account holder has to deposit a specific amount every month. After the expiry of the specified period the depositor will get his money back along with the interest. The number of the instalments may vary from 12 to 72. A passbook is issued to the depositor but no cheque book is issued to the depositor for recurring deposit account.

Four agency functions of the commercial bank are:

**1. Collecting Receipt:** Banks collect amount of cheques, bills, promissory notes on the behalf of their customers and also collects interest dividend and rent on the instruction of their customers.

**2. Making Payments:** On the instruction of customers, banks make payments of loan instalments, interest, rent and insurance premium on the behalf of the account holder.

**3. Buy and Sell Securities:** Banks buys and sell share, debenture and other securities on the behalf of their customer.

**4. Trustees and Executors:** Commercial banks act as a trustees and executors for their customers. They also act as a representative of their customers with other banks. Banks also transfer money from one place to another on the instructions of the customers.

**Answer 8.**

(a) **1. The Chernobyl Disaster:** The Chernobyl disaster was a worst radioactive accident occurred on April 26, 1986 at the Chernobyl Nuclear Power Plant in Ukraine, in the former USSR. The accident, caused by a sudden surge of

power, which destroyed the reactor and released massive amounts of radioactive material into the environment. This accident killed more than 30 people immediately. Due to radiation, pine forest in the immediate vicinity of reactor demolished. Even drinking water got contaminated. The people who lived in the Chernobyl area were diagnosed with radiation sickness and increased number of thyroid cancers among children and adolescents. This happened due to drinking milk from cows that grazed contaminated grass immediately after the accident. This incident clearly exposed the flaws in safety measures in nuclear plants.

**2. Chipko Andolan Movement:** The Chipko Movement was started in the northern Himalayan in Uttarakhand. The word "chipko" refers "to stic" or "to hug". The name of the movement comes from a word meaning "embrace" : where the villagers hug the trees, saving them by interposing their bodies between them and the contractors' axes.

This became popular as "Chipko Movement". Chipko movement is a grassroot level movement, which started in response to the needs of the people of Uttarakhand. The rate of heavy depletion of forests was resulting in destruction, arid-making the Himalayan mountain range barren. Moreover, the construction of dams, factories and roads had already led to deforestation.

(b) Five steps involved in the selection process are:

**1. Preliminary Interview:** This is the first step in the process of selection when candidate comes in contact with companies officials. The purpose of the preliminary interview is to know the minimum qualification, experience and age of the candidates.

**2. Application Form:** After qualifying Preliminary interview the candidates are asked to fill in the prescribed application form to get the written details of the candidates. The application form should be designed so as to secure all the relevant information about the candidate.

**3. Employment Test:** This is conducted to check the required skills in the candidates.

**4. Selection Interview:** It is a method of checking the information obtained through application and employment test, through face to face communication with the candidates. It also helps the candidate to acquire knowledge about the job details and the company.

**5. Checking References:** It is the process of verifying from the names given by the candidate, of the people who knows about him such as his previous job and his character.

**6. Final Approval:** A medical test is conducted to ensure the physical fitness of the candidate which leads to the final approval. The finally approved candidate is issued appointment letter.



- (c) **Vestibule Training:** This is the most common off-the-job training method. Workers are trained in a classroom within the plant. Large number of the workers is trained under the guidance of expert trainer. Instructors teach the theoretical and practical aspect of the job. Same types of machine and tools are used in the vestibule which is used at work place.

**Lecture Training Method:** In this method of training managers learn new ideas and latest development by attending the lectures of the experts. Sometime managers and executives attend courses and classes in management institute to refresh their knowledge and learn new ideas.

#### Answer 9.

- (a) The source of recruitment that has been followed by Mr. Singh for the recruitment of fresh blood managers in the company is external source of recruitment. The method used here is campus recruitments.

**Campus Recruitments:** Companies maintain close liaison with management and technical institutions and universities. Representatives of the companies hold interview in the educational institutions. They select the qualified students and offered jobs on the completion of their studies. This method is used for the recruitment of engineers, computer experts and managers.

- (b) Refresher training is designed to teach employee about the latest developments in the work method. Technological advancements and introduction of new tools and equipment's have increased the needs of this type of training. A short type of refresher course are organised for this purpose. It helps to avoid employee obsolescence and to refresh employees memory.

Significance of refresher training:

1. To keep pace with the new technologies.
2. To become the beneficiaries of the current innovations.
3. To get the best out of the workers.

|   | Transfer                                                          | Promotion                                                                   |
|---|-------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1 | Transfer means shifting of an employee from one place to another. | Promotion means shifting of an employee from a lower post to a higher post. |
| 2 | There is no change in rank, responsibility and remuneration.      | It leads to increase in status, responsibility and remuneration.            |
| 3 | It involves horizontal movement of the employee.                  | It involves a vertical movement of an employee.                             |

- (c) The newly appointed employees were put into a systematic orientation program to enable new employees to understand nature of work which

they have to perform and adjust quickly to the new surrounding and the people.

Promotion was given to the existing and the experienced employees after reviewing the performance appraisal and designing the training program to upgrade their knowledge and skills. Some of the old employees were sent to acquire necessary higher qualifications from the MBA colleges in part-time programmes.

#### Answer 10.

- (a) The non-traditional marketing in which Amazon and Flipkart were engaged in is E-catalogue marketing.

**E-catalogue marketing:** In this method the goods are shown on the website with description of good and their prices. Customer can select the goods of their choice from the website. In order to attract higher sale volume, goods are sold on heavy discount.

- (b) In this case the both Flipkart and Amazon have adopted parity pricing strategy.

Parity pricing is a pricing strategy in which a business firm adjusts its own price policy to the general pricing structure in the industry. It involves charging price according to what competitors are charging. Many companies in the industry follow the price level set by the market leader. It is also known as 'going rate pricing and competition based pricing'.

- (c) **Introduction Stage:** This stage of the cycle could be the most expensive for a company launching a new product. The size of the market for the product is small, which means sales are low, although they will be increasing. On the other hand, the cost of things like research and development, consumer testing, and the marketing needed to launch the product can be very high, especially if it is a competitive sector. Depending on the nature of the product, it will either have a premium price so that its development costs can be recouped quickly (this is the approach used with most high-tech products) or be priced low to encourage widespread adoption what marketers call "market penetration".

**Decline Stage:** After the maturity stage when a product has reached its peak or saturation point, it inevitably enters the decline stage and becomes obsolete. Sales and profit drop severely, competition dwindle, and even then the product cannot stand in the market. It may be priced out of the market by other new innovations. A marketer is expected to keep new products ready to fill up the gap created by the shrinking demand of existing products. At this stage, price becomes the primary weapon of competition, and the firm has to considerably reduce expenditure on advertising and sales promotion. Cost control becomes the key to generate profits.

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# COMMERCIAL APPLICATIONS

# 2019

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

State one difference between each of the following :

- (a) Capital Market and Money Market. [2]
- (b) Direct Cost and Indirect Cost. [2]
- (c) Employment Exchanges and Placement Agencies. [2]
- (d) Cheque and Bank Draft. [2]
- (e) Advertising and Publicity. [2]

#### Question 2.

- (a) Mention any two advantages of wind energy. [2]
- (b) State any two uses of a Balance Sheet. [2]
- (c) Mention any two circumstances when a Bank can refuse payment of a cheque. [2]
- (d) What is meant by consumer education? [2]
- (e) Mention the four elements of Marketing mix. [2]

#### Question 3.

- (a) What is food adulteration ? Give an example. [2]
- (b) State the importance of 'persuasion' as an element of Public Relations. [2]
- (c) Explain two advantages of opening a bank account. [2]
- (d) What is meant by parity pricing ? [2]
- (e) What do you mean by Office and Administrative Overhead ? [2]

#### Question 4.

Give a reason either for or against each of the following :

- (a) Human Resource Management is a challenging function. [2]
- (b) Every transaction has two effects. (answer with reference to the Concept of Accounting) [2]
- (c) Ethics has no role in Public Relations. [2]
- (d) Today's Marketing Concept is known as Consumer Oriented Concept. [2]
- (e) A distribution channel serves as a link between producers and consumers. [2]

### SECTION-B (60 Marks)

(Attempt **any four** questions from this Section)

#### Question 5.

- (a) Explain the maturity stage and abandonment stage of product life cycle. [5]

- (b) Explain three professional and two social significances of Human Resource Management. [5]

- (c) Explain any two lending money functions of the commercial bank. [5]

#### Question 6.

- (a) Explain any two types of interviews that are used in selection of employees. [5]
- (b) Discuss employee relations and government relations on the basis of scope of public relations. [5]
- (c) Explain any five features of Income and Expenditure account. [5]

#### Question 7.

- (a) Discuss the Sales oriented stage and Product oriented stage of marketing. [5]
- (b) Explain Product advertising and Informative advertising. [5]
- (c) Explain the first five steps in personal selling. [5]

#### Question 8.

- (a) Write short notes on : [5]
  - (i) Business Entity Concept
  - (ii) Going Concern Concept
- (b) Explain any two types of consumer products with examples. [5]
- (c) Explain any five procurement functions of Human Resource Management. [5]

#### Question 9.

#### CASE STUDY

Ryan Ltd took the following steps in the beginning of this year to widen its consumer base. It expanded the business operations to cover international markets and within India, it focused on Delhi. It repositioned itself as a FMCG company, offering a wide range of Modern Electronic items, and moved away from traditional marketing to non-traditional marketing. The company focused on quality control and publicity. It also introduced new advertisements featuring film stars and sports personalities. It undertook various brand promotion methods.

- (a) Explain any two advantages of advertising to manufacturers. [5]
- (b) Explain any two elements of promotion mix. [5]
- (c) Explain any five Non-traditional markets. [5]

**Question 10.**

A leading Human Resource consultancy group has received a number of application for the post of an analyst for its Hyderabad office. But the person finally selected had no prior experience for work in the same industry. The administrative manager feels that with proper training the selected person will turn out to be an asset to the organisation. Although he feels that on-the-job training will be the most appropriate, other

members of the selection committee recommended Internship training and Role Playing methods of training.

- (a) What is employee selection ? Mention any three benefits of employee selection. [5]
- (b) Explain Internship and Role Playing methods of training. [5]
- (c) Explain any two internal sources of recruitment. [5]

**ANSWERS****SECTION-A****Answer 1.**

- (a) The difference between capital market and money market is as under :

| S. No. | Basis of Difference | Money Market                                                                                                                                           | Capital Market                                                                                                   |
|--------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1.     | Duration            | These money market instrument have maximum tenure of one year and may even be issued for a single day .                                                | It deals in medium and long term securities.                                                                     |
| 2.     | Instruments         | The main instruments traded here are short term debt instruments such as treasury bills, commercial papers, certificate of deposits, trade credit etc. | The main instruments traded in the capital market are equity shares, preference shares, debentures and bonds.    |
| 3.     | Participants        | The participants in the money market are institutional participants such as RBI, banks, financial institutions etc.                                    | The participants in the capital market are financial institutions, banks, ordinary retail investors from public. |

- (b) The difference between Direct Cost and Indirect Cost is as under :

| S. No. | Basis of Difference | Direct Cost                                                                                                                          | Indirect Cost                                                                                                     |
|--------|---------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 1.     | Relation-ship       | Directly and wholly related to a particular unit or centre of cost.<br>Example- Sugarcane used in sugar mill, Wages of sugar worker. | Not directly and wholly related to a particular unit or centre of cost.<br>Example - Fuel, wages of store keeper. |
| 2.     | Components          | Direct material, Direct labour, Direct expenses.                                                                                     | Indirect material, Indirect labour, Indirect expenses.                                                            |

- (c) The difference between Employment Exchanges and Placement Agencies is as under :

| S. No. | Basis of Difference | Employment Exchanges                                                            | Placement Agencies                                                                   |
|--------|---------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1.     | Status              | The employment exchanges are run by the government.                             | Placement agencies are private recruitment agencies engaged in recruitment of staff. |
| 2.     | Suitability         | These are suitable for the recruitment of semi skilled and unskilled personnel. | These are suitable for the recruitment of managerial and technical personnel.        |



- (d) The difference between Cheque and Bank Draft is as under :

| S. No. | Basis of Difference | Cheque                                                                         | Bank Draft                                                                                           |
|--------|---------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| 1.     | Drawer              | Cheques are always drawn by a person.                                          | A bank draft is always drawn by bank.                                                                |
| 2.     | Dishonour           | A cheque is dishonoured, if the funds in the drawer's account is insufficient. | The draft amount is taken in advance by the bank so there is no question of draft being dishonoured. |

- (e) The difference between Advertisement and Publicity is as under-

| S. No. | Basis of Difference | Advertisement                                                                                           | Publicity                                                             |
|--------|---------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1.     | Sponsor             | The identity of the sponsor is clearly known as it originates from advertiser.                          | The identity of the sponsor is not clear as it originates from media. |
| 2.     | Nature of message   | Persuasive message is designed to persuade customer to favour a product, service, idea or organisation. | Informative message is designed to inform public.                     |
| 3.     | Control             | The sponsor has control over the contents and the timing of the message.                                | Media has control over the contents and timing.                       |

#### Answer 2.

- (a) The two advantages of wind energy are :
1. Wind energy is an inexhaustible source of energy as it is available abundantly in nature.
  2. It is inexpensive and pollution free so it can be generated and supplied to remote areas where other energy sources are not available.
- (b) The two uses of the Balance Sheet are :
1. Balance sheet shows the assets and liabilities owned by a non-trading organisation on a particular date.
  2. It fulfils the statutory requirements as a non-trading organisation is legally required to prepare a balance sheet.

- (c) The two circumstances where bank can refuse payment of a cheque are (any two) :

1. When the signature of the drawer on the cheque does not tally with the specimen signatures in the record of the bank.
2. When the cheque is stale *i.e.*, three months old.
3. When the fund to the credit of the drawer is not sufficient to make the payment of the cheque.

- (d) Consumer education is defined as education given to a consumer about various consumer goods and services, covering price, what the consumer can expect, standard trade practices etc. Consumer education is required for understanding the consumer rights. Basically three parties are involved in consumer education which are business, consumers and government.

- (e) The four elements of marketing mix are :

1. **Product Mix:** It refers to the combination of various features relating to the product or services to be offered for sales. It involves decision related to quality, size, brand, package etc.
2. **Price Mix:** It involves the decision regarding the basic price of the product such as discount, allowance, credit and terms of payment.
3. **Place of Physical Distribution Mix:** It consist of all the activities involved in transferring ownership and physical possession of the products to the consumers. It includes channels of distribution and physical distribution.
4. **Promotion Mix :** It consist of all the activities aimed at persuading customer to buy the product e.g., advertisement, sales promotion, publicity etc.

#### Answer 3.

- (a) Food adulteration is the process in which the quality of food is lowered either by the addition of inferior quality material or by extraction of valuable ingredient. A food item is said to be adulterated if a substance which is added is injurious for human consumption. It not only includes the intentional addition or substitution of the substances but biological and chemical contamination during the period of growth, storage, processing, transport and distribution of the food products. For example, papaya seeds, black berries are the common adulterant used in black pepper as they are almost similar in size. Some of the adulterants that are used in milk are water, chalk, urea, caustic soda and skimmed milk; while khoya is adulterated with paper, refined oil and skimmed milk powder.



- (b) Persuasion is an important element of public relation. To persuade means to convince another person of some idea, product, service or institution, to induce a person or group to do something. A message becomes persuasive when people believe in the source of message. Messages coming from credible sources are generally accepted without question. The basic purpose of public relations is to create and maintain harmonious relations between organisation and public.
- (c) The two advantages of opening a bank account are (any two) :
1. **Habit of Saving** : The bank accounts promote the habit of saving in the public. People are prompted to save and deposit money in bank account due to the benefits of safety and earning interest.
  2. **Safety of Money** : There is always a risk of keeping money at home. It may be lost or stolen. The saving deposited in the bank account remains safe and free from risk.
  3. **Loans and Advances** : The account holders can obtain loans, overdrafts, and cash credit from their banks.
- (d) Parity pricing is a pricing strategy in which a business firm adjusts its own price policy to the general pricing structure in the industry. It involves charging according to what competitors are charging. Many companies in the industry follow the price level set by the market leader. It is also known as 'going rate pricing and competition based pricing'.
- (e) Office and administrative overhead represent "the cost of formulating the policy, directing the organisation and controlling the operations of an undertaking, which is not related directly to research, development, production, distribution or selling activity or function." These costs are of a general nature. They generally comprise of the following costs:
1. Indirect material
  2. Indirect labour
  3. Indirect expenses.
- (b) **For** : Every transaction has two effects as our accounting system is based on the concept of double entry system. Every transaction has two sides. If one account is debited, any other account must be credited and vice versa. It is due to this principle two sides of the balance sheet are always equal.  $\text{Assets} = \text{Liabilities} + \text{Capital}$ .
- (c) **Against** : Business ethics means a set of moral standards which businessman has to follow in their business activities. Publicity not backed by good action is unethical. It will damage rather than improve the image of organisation. Exaggerated propaganda to boost the image causes irreparable damage to the reputation of business in the long run so ethics plays a very important role in public relation.
- (d) **For** : Customer is the king in the present scenario. The business policies and programmes are built around the goal of customer satisfaction. In order to survive and grow in this highly competitive world a company must first determine what customer wants thus, we can say today's marketing concept is known as customer oriented concept.
- (e) **For** : A distribution channel serves as the connecting link between the producer and consumer as it creates utilities of time, place and possession by bridging the gap between the point of production and point of consumption. It starts with producer and ends with consumers with several intermediaries in between. It facilitates the flow of goods from producer to final consumers.

## SECTION-B

### Answer 5.

- (a) **Maturity** : This is the time for the producer to enjoy the fruits of the labour. It is the period when the early as well as the late adopters have become loyal customers and will keep on buying the product. During this stage competitors enter the market and the producer may have to lower the price in order to attract more customers and increase sales and expand the market share. To beat competition and increase product awareness the company may have to increase its marketing expenditure in terms of advertisements, promotional campaigns or offer discounts on certain packages. Overall marketing effectiveness becomes the key factor in the stage of maturity. Low prices, increasing competition, rising marketing costs and declining profits are the features of this stage.

**Abandonment Stage** : In this stage most of the firms gradually phase out the declining product

### Answer 4.

- (a) **For** : HRM is a challenging function as it has to deal with human elements in an organisation. Each individual has unique personality with their own physical and physiological traits. Humans react to different situations in different ways. Even the same individual behaves differently at two different points of time. It is therefore very difficult to predict human behaviour. Human Resource Management is, therefore, necessary tactfully as it is not simply managing people but administering a social system.

to make better use of their limited resources. Preference of the customer may change and new product enters the market to take the place of abandoned product, some firm try to postpone abandonment by introducing a new model with unique features.

- (b) The professional and social significance of the Human Resource Management are-

**Professional Significance :** It permits the team work among the employees by providing a healthy working environment. It contributes to the professional growth in the following ways :

1. Provides maximum opportunities for the personal development of each employee.
2. Maintaining healthy relationship between individuals and different work groups.
3. It is a continuous process that acknowledges the employees of the organisation as its most precious resource.

**Social Significance :** It helps to enhance the dignity of the labour in the following ways :

1. Providing suitable employment that provides social and psychological satisfaction to the people.
2. Maintaining a balance between the jobs available and the job seekers in terms of numbers, qualifications, needs and aptitudes.

- (c) This function is very important because the economic development of the country mainly depends on the credit schemes of banks. Banks lend money in different forms. The two lending functions of the commercial banks are :

**1. Cash Credit :** Cash credit is a short-term credit given to the businessmen for meeting their working capital requirements. It is normally made against some tangible security or personal guarantee. The banker opens the cash credit account in the name of the borrower and permits him to withdraw money according to the need up to his credit limit. The interest is charged only on the amount actually withdrawn by the account holder from the account and not on the whole amount. This type of loan is very popular among businessmen in India.

**2. Loans and Advances :** The bank advances the fixed amount in lump sum to the borrower for an agreed period. The borrower may withdraw the whole amount at once or as per his needs. But the interest is charged on the whole amount sanctioned. Commercial banks grant both short term and medium term loans.

#### Answer 6.

- (a) The selection interview is a formal conversation between the candidate and the employer to judge

the candidates suitability for the job. The two types of the interview in the selection process are-

**1. Structured Interview :** This type of interview is systematically planned in advance and is conducted in a pre-planned manner. The questions to be asked and the time to be allowed to each candidate are decided in advance. This is the most common type of selection interview.

**2. Stress Interview :** The purpose of this interview is to see how a candidate reacts to awkward questions and difficult situations. The interviewer deliberately adopts a hostile attitude by asking questions rapidly, by criticising candidate etc. The interaction with the candidate in the stressful situation is judged. If the candidate keeps his emotions under check he is selected.

- (b) **1. Employee Relation :** The foundation of the good employee relations is a sound personnel policies and its proper implementation. Failure to inform employee about corporate policy and development affecting their interest leads to misunderstanding and criticism. Employee also want to express their opinion about the matter affecting their interest therefore two-way communication channel between management and worker are required to maintain good employee relations.

**2. Government Relation :** The important development in the public relations has been the closer relationship between corporate houses and government. Business is taking active part in government affairs. Government is also consulting businessmen in formulating policies and program for the economic and social development of people.

- (c) The main features of the income and expenditure account are :

**1.** It is a nominal account therefore the expenses and losses are debited and incomes and gains are credited.

**2.** The opening and closing balance of cash in hand and cash at bank are not recorded in it.

**3.** While preparing Income and Expenditure account only items of revenue nature are recorded and all the items of capital nature are not included. For example profit earned and loss suffered on the sale of asset will be recorded in it but the amount received from the sale of asset is not recorded.

**4.** Income and expenditure pertaining to only current year are recorded in it. All the items of income and expenditure which pertain to the previous year and future year are not recorded in it.

5. The closing balance of this account shows surplus or deficit for the year. If the credit side exceeds the debit side, there is surplus. On the other hand if the debit side exceed the credit side, there is deficit. The surplus is added to the capital fund while deficit is deducted from the capital fund.

#### Answer 7.

(a) **1. Sales Oriented Stage :** After the great depression, the focus shifted from production to selling. The producers began to realise that the customer will not buy unless they are approached with substantial selling and promotional efforts. It is the stage which was characterized by hard selling. Salesmen were the focus of marketing activities because products could not be sold without effective sales force. Customer importance was realised but as a means of disposing of goods produced.

**2. Product Oriented Stage :** In this stage the marketers realised that the customer will only buy the product if its quality was good enough. The focus shifted from promotion to product improvement. The firms made efforts to improve product features and performance. The overemphasis on product improvement resulted in marketing myopia in this stage.

(b) **1. Product Advertising :** The main objective of the product advertisement is to promote the sale of a particular product, brand or service. It is sponsored by manufacturer, trader and other organisations to promote the uses, features and image of their products and services. The product advertisement is of two types :

**(1) Direct Action Advertising :** It is aimed to get quick response or action to the advertisement. For example a departmental store gives an advertisement in the local newspaper stressing discount for the current month.

**(2) Indirect Action Advertisement :** It is created to get the favourable response towards the advertised product over a long period of time.

**2. Informative Advertisement :** This type of advertisement contains the information about the product/services and institution. It makes consumer aware of existence, features, use of goods and services. For example advertisements suggesting how to save petrol or avoid accidents are informative advertisement.

(c) The process of personal selling consist of the following steps :

**1. Preparation :** Salesman should be fully prepared and have the up-to-date knowledge

of the firm and its products, and services, competitors and their products customers and their selling techniques. He must be fully aware of the quality, use, price etc. of the goods to be offered to the customer for sales.

**2. Prospecting :** Prospecting means locating and identifying the potential customer. A list of the prospective customer is prepared with the help of trade directories, sales persons, dealers etc., the information regarding age, income, family background, taste and preference are collected. The collection of this information is called as pre-approach.

**3. Approach :** In this step the salesperson makes face to face contact with the prospective buyer. The salesperson first introduces him, greet the customer and start the conversation with him so as to create a good first impression.

**4. Presentation :** Salesperson describes and displays the product to be sold and should tactfully demonstrate the product and explain its quality, utility and performance to the customer. He should explain how the product meets the need of the customer and try to arise the interest of the customer.

**5. Convincing :** In this stage the salesperson handles the objections raised by the customers. Objections are considered as the sales opportunities instead of arguing or loosing temper, the salesperson should understand the causes of objections and try to convince the customer to close the sales.

#### Answer 8.

(a) **(i) Business Entity Concept :** The business entity concept states that the transactions related to a business must be recorded separately from those of its owners and any other business. In other words, while recording transactions in a business, only those events that affect that particular business are recorded. This concept is very important because if transactions of a business are mixed up with that of its owners or other businesses, the accounting information would lose its usability. The business entity concept of accounting is applicable to all types of business organisations (*i.e.*, sole proprietorship, partnership and corporation).

**(ii) The Going Concern Concept :** It is assumed that a business will continue to exist for a long time in future and transactions are recorded as the business will exist for a indefinite period of time. A firm is said to be going concern when there is neither the intention nor the necessity to wind



up its affairs. In the absence of this assumption no outside parties would enter into the long-term contract with the firm for supplying funds and goods. The going concern concept also implies that the existing liabilities will be paid at maturity. Unsold stock of goods is taken to the next year.

- (b) The consumer products are meant for final consumption and not for sale. The two types of consumer products are-

1. **Convenience Product** : These products are purchased frequently and with minimum of efforts. They are meant for personal convenience. Newspaper, toothpaste, soap etc., are the examples of convenience products.

2. **Shopping Products** : These products are purchased after a comparative analysis of quality price, warranty, etc., of competitive brands. Furniture, TV, fridge, car etc., are the examples of shopping products.

- (c) The five procurement functions of the human resource management are

1. **Human Resource Planning** : It is the process of estimating the present and future manpower requirement of the organisation, preparing inventory of present manpower and formulating action program to bridge the gaps in case of shortage.

2. **Recruitment** : It is the process of searching for required personnel and stimulating them to apply for the job in the organisation.

3. **Selection** : It implies judging the suitability of different candidates for the organisation and choosing the most appropriate candidate.

4. **Placement** : It means assigning suitable job to the selected candidate so as to match employee qualifications with the job requirement.

5. **Induction or Orientation** : It involves familiarising the new employee with the company, the work environment and the existing employees so that new employee feel comfortable and can start his work confidently.

#### Answer 9.

- (a) The two advantages of advertising to the manufacturer are :

1. Advertisement creates demand for the new products by informing people about their availability and use. It helps to maintain steady demand for the product by smoothening out the seasonal fluctuations in demand.

2. Advertisement creates goodwill by making the manufacturer and his products famous and known in public. It is helpful in overcoming competition in the market.

- (b) The two elements of the promotion mix are :

1. **Advertisement** : It is the paid form of communication. It includes the activities concern with providing product information to consumer through radio, newspaper, television and other non-personal media.

2. **Personal Selling** : It refers to face-to-face communication between a seller or his representative and the buyer. Salesperson of an enterprise assists and persuades the prospective customer to buy the product.

- (c) The five non-traditional markets are-

1. **Catalogue Market** : In this type of market, a catalogue is kept in the showroom. The customer selects the goods by reading the catalogue which contains product details and price. Customer order the goods and order are send to warehouse for supply. A copy of the catalogue is mailed to the regular customer to enable them to make out the order at home or pick up the goods from the showroom. In catalogue market a broad range of fast moving branded goods are sold at discounted rates like jewellery, watches, cameras etc.

2. **In-House Market** : In this, there is door to door selling, salesperson visits the homes of the consumers and offer products to them. This is an effective method and offer great convenience to the customer. In India Eureka Forbes is selling its water filter and vacuum cleaner through this method.

3. **Mail Order Market** : In this market seller mails the price list and publicity material to the prospective buyer. Customer place order after reading the advertisement and the goods are dispatched to the customer through V.P.P. or courier.

4. **Automatic Vending Machine** : Well known brands of products of the daily use are sold through vending machines. Customers insert coupons or cash in the machine to collect the product. Vending machines are used to sell tea, coffee, candy etc. In Delhi, Mother Dairy sells the milk through vending machines.

5. **Tele-marketing** : The product is advertised and demonstrated on the TV and in the newspaper. Toll free number is mentioned in the advertisement. Customer place order on the toll free number and order is executed through courier.

#### Answer 10.

- (a) Employee selection is the process of judging the suitability of the applicant in the light of the job requirement to decide which candidate should be



hired. Employee selection is a negative process because the number of the candidates rejected is much higher than the selected candidate. There are many stages in the selection process; at every stage unsuitable candidates are eliminated so that most suitable candidates are identified.

Three benefits of the employee selection are :

1. It helps to improve efficiency and profitability by choosing a qualified candidate with required skill set for every job.
  2. It ensures satisfaction to employees by matching the candidate with the job.
  3. It helps to minimize labour turnover and absenteeism.
- (b) **1. Internship Training :** This is a training programme in which business houses collaborate with the technical institutions. It involves balance between theory and practice. The trainees are given theoretical instructions in technical institutions and they receive practical training in factories and offices. This method is used in medical, engineering and legal profession.

**2. Role Playing Method :** In this methods the trainee is assigned different roles where he learns to deal with the interactions and complexities involved in various roles, for example an employee may be asked to play the role of the labour officer and negotiate with other trainee who plays the role of union leader.

(c) The two internal sources of recruitment are :

**1. Transfer :** Transfer means shifting of the employee from one place to another without any change in rank, responsibility and remuneration. It is a horizontal movement of the employee. Vacancies in one factory, branch or office are filled by transferring surplus staff from one factory or office to another.

**2. Promotions :** It means shifting employees from lower position to higher position in the organisation, it leads to increase in rank, responsibility and remuneration of the employee. It is a vertical movement of the employees. Promotions are made on the basis of merit and seniority of the employee.

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GURUKUL

# COMMERCIAL APPLICATIONS

# 2018

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

State one difference between each of the following :

- (a) Spot Market and Future Market. [2]
- (b) Institutional Advertising and Product Advertising. [2]
- (c) Fixed Deposit Account and Recurring Deposit Account [2]
- (d) Fixed Cost and Variable Cost [2]
- (e) Recruitment and Selection [2]

#### Question 2.

- (a) Mention any two essentials of a Brand. [2]
- (b) State any two uses of Income and Expenditure Account. [2]
- (c) Mention any four elements of Price Mix. [2]
- (d) Mention any two harmful effects of global warming. [2]
- (e) What is meant by Vestibule Training ? [2]

#### Question 3.

- (a) Mention any two merits of external sources of recruitment. [2]
- (b) What is a Bank Draft ? [2]
- (c) What do you mean by business ethics ? [2]
- (d) Give two reasons for the growing importance of Public Relations to business enterprises. [2]
- (e) Give two General Utility functions of Commercial Banks. [2]

#### Question 4.

Justify a reason either for or against each of the following :

- (a) A Receipts and Payments Account is a nominal account. [2]
- (b) Some costs are semi-variable in nature. [2]
- (c) Human Resource is the most valuable asset to business enterprises. [2]
- (d) A company needs to pay for its publicity to the media owners. [2]
- (e) With reference to the concept of accounting only those transactions are recorded in accounts which can be expressed in terms of money. [2]

### SECTION-B (60 Marks)

(Attempt **any four** questions from this Section)

#### Question 5.

- (a) Distinguish between 'Product' and 'Services.' [5]
- (b) Explain the strategies to be adopted during the Introduction Stage and the Growth stage of Product Life Cycle. [5]
- (c) Explain 'Accounting Period Concept' with reference to concept of accounting. [5]

#### Question 6.

- (a) What is direct selling ? Mention four circumstances where direct distribution is more suitable than indirect channels of distribution. [5]
- (b) Explain any five qualities of a good salesman. [5]
- (c) Explain Matching Principle of Accounting. [5]

#### Question 7.

- (a) Write short notes on : [5]
  - (i) Consumer Rights
  - (ii) Direct and Indirect Labour cost
- (b) Explain any two functions of a Central Bank of a country. [5]
- (c) Explain any two methods of On-The-Job Training. [5]

#### Question 8.

- (a) Briefly explain the elements of public relations. [5]
- (b) Explain : [5]
  - (i) Campus Recruitment
  - (ii) Placement agencies as external sources of recruitment.
- (c) What is energy crisis ? Discuss any two renewable energy sources that would help meet this crisis. [5]

#### Question 9.

### CASE STUDY

Flipkart, a Bengaluru based company, which started in the year 2007 as an online book store is now India's largest e-retailer. It is popular in the books and electronics segment but it now sells products across categories including fashion, consumer durables, home decor and furniture. Flipkart is doing a very good business and it acquired 100% of Myntra, but Myntra will operate as an independent entity. Mobile Brand 'Motorola' is selling their new launches in India through Flipkart. The company aims at becoming leader in every segment.

India's e-commerce market has seen growth in the past few years as more people log on to the Internet to shop online. Goods can be bought on 'cash on delivery'. Various banks like HDFC, Axis and ICICI tied up with the reputed e-sellers so as to convert online purchases into convenient equated monthly installments. Amazon, the world's largest e-retailer entered India and in few months the company has aggressively gained market share by expanding its product range and introducing the one day delivery system. Soon after, Flipkart also introduced one day delivery and the same day delivery in selected towns and cities. With reference to the above, answer the following questions :

- (a) What is online shopping ? [5]  
Name any three companies do online trading in India.
- (b) What are the reasons for the increase in online shopping in India ? [5]
- (c) Identify the distribution channel adopted by Motorola in selling its new launches.  
Briefly explain few other distribution channels adopted by marketeers. [5]

#### Question 10.

The oldest Indian confectionery company wants people to know that their cookies and biscuits are from the "House of Parle". The company finds it important to reinstate the credibility and familiarity of the brand. From now onwards, the company will advertise its products under the tagline "From the House of Parle". Parle is sitting on a strong pedigree of many individual brands. With reference to brand equity, while the

flagship Parle-G is worth ₹ 5000 Crore plus and by far the biggest brand in the portfolio combining nearly 30% of overall share, others like Parle 20-20 and Parle Magix Cream are among ₹ 1000 Crore and Krackjack, Monaco and Hide & Seek around ₹ 500 Crore.

The fact that Parle is strongly associated with Parle-G, the world's largest biscuit brand, is both a strength and a weakness. The company today suffers an image deficit compared to Britannia and IFC's Sunfeast. With this latest campaign, Parle is careful enough not to take either of the two extreme routes—harping multiple brands or shifting focus on the corporate brand alone. Instead, it has opted for a more judicious mix.

Researchers are comparing the current Parle strategy to the Titan strategy. The watch brand, in its early days, used the tagline "From the house of Tatas". However, when it became a big brand itself, various sub-brands like Raga, Nebula, Edge, etc., all started using the tagline "From Titan". In the same way, Parle is trying to bring forth the main brand in the mindspace of consumers and make the sub-brands its subordinate.

With reference to the above :

- (a) Explain the brand policy Parle has taken to advertise its products. [5]
- (b) What is brand equity ? Explain the brand equity Parle products are measured in and mention the sub-brand which has the highest brand equity. [5]
- (c) What is brand promotion ? Explain two methods of brand promotion. [5]

## ANSWERS

### SECTION-A

#### Answer 1.

(a)

| Spot Market                                                                                                  | Future Market                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. In the spot market, goods are physically transferred from the buyers to the sellers at the current price. | In the future market, the commodity exchange requires actual delivery of goods from the seller to the buyer at some future date but at the current or pre-determined prices. |
| 2. Spot market is a market place where trades are settled immediately.                                       | Future market is a market place where trades are settled on a specific date in the future.                                                                                   |

(b)

| Institutional Advertising                                               | Product Advertising                                                              |
|-------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1. The emphasis is on building the favourable image of an organisation. | The emphasis is on building the favourable image of a product, brand or service. |
| 2. The immediate aim is to build goodwill of the organisation.          | The immediate aim is to increase the sale of a product.                          |

| (c) | Fixed Deposit Account                                                                                                                                        | Recurring Deposit Account                                                                                                                       |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 1. The Fixed Deposit is a method of investment where the amount is deposited into an account at the time of opening of the fixed deposit account.            | The Recurring Deposit is a method of investment where fixed amounts of installments are deposited at regular intervals of time into RD account. |
|     | 2. Fixed deposits are considered beneficial for people who are having surplus money to invest, so that they can earn higher returns in the form of interest. | Recurring deposits are considered beneficial for people who are having a regular income and want to save money for long-term purposes.          |

(d) Refer to ICSE Paper 2020, Answer Q. 1(e).

(e) Refer to ICSE Paper 2020, Answer Q. 1(d).

### Answer 2.

(a) Refer to ICSE Paper 2020, Answer Q. 2(a).

(b) Following are the two uses of Income and Expenditure Account :

1. It is used to show the surplus or deficit of the non-profit organisation after a particular time period, generally a financial year.
2. It shows all the revenue receipts and expenditures related to the particular financial year whether they are outstanding or not.

(c) The four elements of Price Mix are :

1. **Credit** : Credit refers to the transfer of goods in return of a promise to pay an equivalent value on demand or in future.
2. **Discounts** : A firm takes various steps to increase their sales so as to improve their cash position. One of the way to accomplish it is by giving discounts to the customers. This is a kind of relaxation in prices.
3. **Allowances** : The manufacturer may offer promotional allowances, e.g., advertising allowances, window display allowances, free samples, free display materials, free training in sales demonstration.
4. **Price policy** : Pricing policy refers how a company sets the prices of its products and services. Different types of pricing policies followed by the firm include : Cost based pricing, demand based pricing, value based pricing, and competition based pricing.

(d) Following are two harmful effects of global warming :

1. Global warming has disastrous effects on the environment such as melting of polar ice, changes in amount and pattern of rainfall, rise in sea level, frequent floods and droughts, hurricanes and typhoons.
2. It causes large-scale of extinction and have serious impacts on human lives by affecting fresh water availability, agricultural yields, increases in the spatial and quantitative ranges of disease

vectors, as well as on economic infrastructure such as energy, transport and industry.

(e) **Vestibule training** : Vestibule training is also known as "near the job training". New workers are trained with special machines and equipments in a separate location near the actual place of work, under the practical work situation. This place is called a vestibule and the actual work situation is duplicated here.

### Answer 3.

(a) Following are the two merits of external source of recruitment :

1. **Wider Choice** : Selection from external sources facilitates the choice of personnel from among a large number of applicants. The enterprise can carefully weigh the plus and minus points of all the candidates and then select the best.

2. **Fresh Outlook** : External recruitment provides an opportunity of a fresh outlook on the industry that a company may need to stay competitive. Bringing in fresh talent from the outside can help in developing skills set of the organisation.

(b) A bank draft is a type of cheque, drawn by a bank either on its own branch or on another bank in favour of a third party. It is the most convenient and the cheapest method of remitting money from one place to another. The draft is payable only on demand and is therefore known as demand draft. It can either be encashed on the counter or, if it is crossed, it can be collected only through a bank. It is payable to the person named in it or to his order. Bank draft does not get dishonoured. In many respects, bank drafts are similar to cheques as both are dated and both can be crossed.

(c) Ethics refers to the conduct that is right or wrong, according to the accepted standards or principles. Business ethics are moral principles that guide the way a business behaves. Acting in an ethical way involves distinguishing between "right" and "wrong" and then making the "right" choice which is beneficial for all the stakeholders.

(d) Following are the reasons for growing importance of Public Relations to business enterprises :



**1. Improving the image of the organisation :** Public relations plays a vital role in the achievement of specific objectives at all levels in an organisation's work by communicating an effective message. It is an excellent and cost effective method of improving the image of an organisation and its product.

**2. Pervasive function :** The need for public relations has increased manifold due to the enormous growth in business. There is a need for public relations in every field. It is an indispensable tool in today's management of both commercial and non-commercial organisations. It is an essential service to anybody who has ideas, products and a cause to be promoted.

(e) Following are the two general utility functions of commercial banks :

1. They provide safety vaults or lockers for the safe custody of jewellery, valuable documents and other precious possessions of their customers.
2. They issue letters of credit, circular notes, drafts and traveller's cheques which facilitate purchases of goods in distant places.

**Answer 4.**

(a) **Against :** A Receipts and Payments Account is a real account as it is prepared at the end of the year from Cash Receipts Journal and Cash Payments Journal. It does not include non-cash items like depreciation, outstanding expenses or accrued income.

(b) **For :** There are some costs which vary but not in direct proportion to changes in the volume of production and thus are called semi-variable costs. Such costs contain fixed and variable elements. Because of the variable element, they fluctuate with volume and because of the fixed element they do not change in direct proportion to output. Semi variable or semi fixed costs change in the same direction as that of the output but not in the same proportion. Depreciation, repairs, etc., are the examples of semi-variable costs.

(c) **For:** Human resource is the most valuable resource of an organisation. It is the only active resource an organisation has otherwise all of the other resources are non-living. It is human resource which utilizes other resources to produce goods and services. They are the face of the company in any service industry. It is only human resource that generates revenue for the company. So, they are the foundation on which an organisation exists.

(d) **Against :** Company need not to pay for its publicity to the media owners as it is non-paid form of promotion done through newspaper,

journals, radio, etc. It is relatively a minor form of promotion because the seller has no control over what the media will mention.

(e) **For :** A business and a business person are treated as two different and distinct identities although that business might be wholly owned by that business person. Accountants want that the business unit to be accounted for must be identified. This concept is applied to all forms of business organisation for the following reasons:

1. To ensure proper use of funds by the owners.
2. To ascertain the success of the business.
3. To arrive at a solution for the problem of separating business transactions from the personal transactions of the owner and to enter into transactions with outsiders in the name of the firm.

## SECTION-B

**Answer 5.**

(a) Difference between Product and Services

| Characteristics          | Product                                                                                   | Services                                                                            |
|--------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1. Tangibility           | Products are tangible. They can be seen, touched, felt during the process of consumption. | Services are intangible. They can only be felt during the process of consumption.   |
| 2. Separability          | Products are separable from their producers or providers.                                 | Services are not separable from their producers or providers.                       |
| 3. Storability           | Products can be stored.                                                                   | Services cannot be stored.                                                          |
| 4. Participation         | Customers do not participate in the production of products.                               | Services cannot be performed in the absence of the customers' active participation. |
| 5. Transfer of Ownership | When a product is sold, the title of ownership moves from the seller to the buyer.        | In case of services, there is no transfer of title of ownership.                    |

**(b) The following strategies may be employed in the introduction stage:**

1. Proper advertisement and publicity of the product. *e.g.*, money back guarantee.
2. Attractive gifts to customers as an introductory offer.
3. Selective distribution and attractive discount to dealers.
4. Removing technical and other deficiencies in the product.
5. Skimming the cream pricing policy.

**The following strategies may be adopted in the growth stage:**

1. Heavy advertising to create brand image and to stimulate sales.
2. Expanding distribution channels to make the product available wherever demanded.
3. Introducing new versions of the product to cater to the needs of different types of customers.
4. Greater emphasis on customer service.
5. Keeping the price at competitive levels.

**(c) The Accounting period concept :** This concept requires that the life of business should be segregated into equal parts which are termed as Accounting Periods. This concept requires consistency of accounting periods. It helps in estimating the profit or loss and financial position of a business for a particular period.

To study the results of a business, the life of a business is divided into short periods of equal length. Each such period is known as accounting period. Generally, an accounting period is one year. Hence, an income statement shows the financial performance over one year while a balance sheet shows the financial position at the end of a year. This year may be either calendar year or financial year. The accounting period starts from 1st April and ends on 31st March. It is an artificial timeperiod for preparing accounts.

**Answer 6.**

**(a) Direct selling is a method of marketing and selling products directly to the consumer without involving any other participant in the distribution channel. Direct distribution is more suitable than indirect channels of distribution in the following ways :**

**1. When product is technically very advanced:** When the firm makes very complicated and technically advanced products, it likes to sell those products through direct selling. This way, it will be able to make the customers understand the product.

**2. When firm wants to give personalized services to its customers :** When a firm wants to provide highest degree of services to its customers and does not want to rely on intermediaries then direct selling is the best way to deliver personalized services.

**3. Cost Benefits :** Direct channel of distribution cuts down the margin of wholesalers, retailers and other intermediaries, thereby lowering the final cost of product and providing cost benefit to both the producers and consumers.

**4. Faster response :** Direct marketing channels enables manufacturer to directly contact with consumers. This helps consumers as well as manufacturers by creating direct link. Consumers can easily contact manufacturers regarding queries and manufacturers can easily understand the needs of consumers. Thereby, direct selling enables faster response.

**(b)** Refer to ICSE Paper 2020, Answer Q. 5(c).

**(c) The matching principle :** This principle provides the guidelines as to how the expenses are to be matched with revenue. It requires that in determining the net profit, all costs which are applicable to the revenue of that period should be charged against that revenue. For matching costs with revenue, firstly, revenues should be recognized and then costs incurred for generating that revenue should be recognized. The matching of costs with revenue is based on the actual system of accounting. While matching costs with revenues, the following points must be considered:

1. When an item of revenue is included in the profit and loss account, all expenses incurred on it, whether paid or not, should be included in the profit and loss account. Outstanding expenses are debited in the profit and loss account on this basis.
2. If an amount is spent, but revenue from it will be earned in the next year, the amount should be carried down as an asset and should be shown as an expense next year, Prepaid expenses (*e.g.*, prepaid insurance) are shown as assets in the Balance Sheet on this basis.
3. Cost of goods remaining unsold at the end of the year together with expenses incurred on them must be carried forward to the next year. Therefore, closing stock is carried over to the next year as opening stock.
4. Incomes received in advance must be treated as a liability, while income earned but not received should be recognized as an asset.

**Answer 7.**

- (a) (i) **Consumer rights** : Consumer rights are very important for all the consumers. These rights are well-defined. There are agencies, like the government, consumer courts and voluntary organisations that work towards safeguarding them. Consumers must be well aware of their rights. The consumer rights are as follows :

1. Right to Safety.
2. Right to be Informed.
3. Right to Choose.
4. Right to be Heard.
5. Right to Seek Redressal.
6. Right to Consumer Education.

(ii) **Direct labour cost** : The labour which takes an active and direct part in the production of a particular commodity is known as direct labour and the cost incurred on them is called direct labour cost. Direct labour costs are specifically and conveniently traceable to specific products. *e.g.*, A carpenter's wages.

**Indirect labour cost** : Labour employed for the purpose of carrying out tasks incidental to goods produced or services provided is indirect labour and the cost incurred on them is called indirect labour cost. Such labour does not alter the composition, construction or condition of the product. It cannot be easily traced to specific units of output. Wages of storekeepers, timekeepers, foremen, salesmen's salaries, directors' fees, etc., are examples of indirect labour costs.

- (b) Refer to ICSE Paper 2020, Answer Q. 6(c).

- (c) **On the job training** : On-the-job training involves assignment of a new employee to a specific job at a machine or work place in the shop, office or laboratory. The worker is trained while, he is engaged in the work by utilising the actual work situation for the purpose. He is given the work straight away under the supervision of some senior employee and he learns the job under him.

1. **Coaching or mentoring** : In this method, the supervisor instructs and guides the trainee. The new employee learns the ins and outs of the job under the guidance of his supervisor. This method improves relationship between the worker and his supervisor. But this method can be effective only when the supervisor is competent and takes interest in training.

2. **Apprenticeship training** : This method of training is in vogue in those trades, crafts and technical fields in which a long period is required for gaining proficiency. Apprenticeship training aims at providing necessary background,

practical knowledge and necessary experience to the worker. Its purpose is to prepare employees for skilled occupations like carpentry, plumbing, etc. It combines class room instructions, demonstrations and on the job training. The method familiarizes with the complications and intricacies of the job. A trainee, serving as an apprentice, has to work in direct association and under the direct supervision of the trainee's masters. Sometimes, workers are also placed as assistants to experienced workers to learn the process of work by imitation and experience. The apprentice works under the trainee's master. During the period of apprenticeship, the trainee may be given a stipend.

**Answer 8.**

- (a) Elements of Public Relations are as follows :

1. **Human relations** : Public relation is getting along with the people or 'public' both internally and externally. Each person who works in an organisation has to get along with others. He is expected to understand people and take interest in their progress.

2. **Empathy** : Empathy is the ability to resonate another person's feelings and emotions as if they were your own. In other words, it is power of understanding feeling of others. It enables an executive to be sensitive and sympathetic to attitudes, expectations and problems of his workers and clients.

3. **Persuasion** : There are two ways of changing the mind of others namely by persuasion and by force. Persuasion is the process aimed at changing a person's (or a group's) attitude or behaviour towards some event, idea, object, or other person(s), by using written or spoken words to convey information, feelings, or reasoning, or a combination of them. Thus, persuasion is positive and hence results in positive outcome.

4. **Dialogue** : Dialogue is a conversation between two people with some purpose. Dialogue is a reasonable exchange of ideas bringing into being a new form of knowledge. The use of dialogue is for influencing behaviour, selling goods or inspiring ideas. It helps to reduce prejudice and builds up mutual confidence.

Effective dialogue requires impartial listening and understanding. There should be respect for each other's opinions. A good way to start dialogue is by asking questions and listening to the answers.

- (b) (i) **Campus recruitment** : Campus Recruitment is the program conducted within educational institutes to provide jobs to students. In this



program, industries visit the colleges to select students depending on their ability to work, capability, focus and aim. Managers, officers, technicians like engineers, electricians, mechanics and skilled workmen are often recruited from institutions like Indian Institute of Management (IIM), Indian Institute of Technology (IIT), Engineering colleges, Industrial Training Institutes, Polytechnics, etc.

**(ii) Placement agencies :** The private employment agencies are also known as placement agencies. They have the list of candidates seeking jobs and whenever there is any vacancy, it is met through these candidates. These institutions charge commission for their services and are very popular for recruiting technical, professional and managerial personnel. It is a common source of recruitment in India as well as foreign countries.

- (c)** An energy crisis is any great bottleneck in the supply of energy sources to an economy. For example, shortage of oil, or the shortage of electricity or other natural resources. It usually happens when a gap between demand and supply arises. Following are the two renewable energy sources that will help in dealing with energy crisis:

**1. Solar energy :** Solar energy has been used since prehistoric times in the most primitive manner. Solar energy is the energy received by the earth from the sun. India is fortunate enough to receive high amount of solar energy, equivalent to 5,000 trillion kWh per year. This is because of India's location on Tropic of Cancer. The solar energy can be converted into other forms of energy mainly by two methods :

**The photo voltaic method :** The sun's energy is directly converted into electricity using a photo voltaic cell or solar cell. The electricity produced by this method is used for street lighting, radio and television sets, lighting houses, water pumps etc.

**The thermal method :** In this method, solar radiation in the form of heat is converted into mechanical, electrical or chemical energy by using solar thermal devices like cookers, heaters etc.

**2. Biomass energy :** Biomass includes firewood, crop and timber wastes, aquatic plants, animal wastes and organic matter from household, municipal and certain types of industrial wastes. Biogas is produced by the anaerobic digestion of biomass. To obtain this energy in viable quantities, resources and proper infrastructure is required for biomass growing, collecting, drying,

fermentation and burning. Biogas plants that use cattle dung, human excreta and plant debris are such recently developed devices. Biogas is a mixture consisting of 65% methane ( $\text{CH}_4$ ) and 35% of carbon dioxide ( $\text{CO}_2$ ). The biogas can be used for cooking purposes. It is also possible to generate electricity on a usable scale if the size of the biogas plant is large enough. India produces about 300 million tones of crop residue every year which theoretically generates about 40,000 MW of electricity.

#### Answer 9.

- (a)** In today's world of advanced technology, the companies demonstrate its products on the internet, state their features and benefits and sell the products. Orders are booked on the internet and products are delivered at the doorsteps of the customers.

When customers buy products and services through this medium, it is called online shopping. Amazon, flipkart, Tata Cliq are the three companies doing online trading in India.

- (b)** Following are the various reasons which have led to the increase in online trading in India :

**1. The digital age :** The expansion of digital services has led to the expansion of e-commerce. Now the reach of computers, internet and mobile phones has taken place in every nook and corner of the country. So, it has become easier for the people to shop online.

**2. Privacy in buying :** The best benefit online shopping provides is that no one knows what a customer has purchased. This gives a sense of privacy to a customer.

**3. Time saving :** Online shopping leads to a lot of saving in time of terms of going to the market, searching the shops, waiting in lines for payments and dealing with traffic jams etc. Such saved time can be utilized for some other purposeful activities.

**4. Saving in cost :** When a customer buys a product online after comparing it on various websites, there are big chances that he may get the cheaper product. This will provide savings in cost to the buyer.

**5. Customer feedbacks :** A very good feature of online shopping is the customer feedback. The people who have already used the products provide very valuable feedbacks regarding the products which help new buyers to decide whether they should buy the product or not.

- (c)** Motorola is adopting the shortest and the simple channel of distribution from the manufacturer



to the consumer directly. No middleman or intermediary is present between the producer and the consumer. This channel is very fast and economical. The producer has direct contact with the consumer and full control over distribution.

The other methods are - manufacturer – retailer – consumer.

Manufacturer – wholesaler – retailer – consumer.

Manufacturer – agent– wholesaler - retailer – consumer.

#### Answer 10.

- (a) Parle has adopted the strategy of combination brand. The term 'combination brand' uses both the individual brand for every product and its family or umbrella brand for all the products together. This policy enables the company to take benefits of both types of branding strategies. Parle has adopted this strategy to develop a distinct identity of each of its product like 20-20, Monaco, Krackjack etc., to compete with the products of different varieties. But it is also emphasizing the importance of manufacturer's identity to build high level of trust among its customer that if they are satisfied with any of the products of Parle, its other products will also deliver the same level of satisfaction. So, under this kind of branding strategy, the customers get the image of organisation also along with the product image.
- (b) Brand equity refers to the value of a brand. It indicates a value premium that a company generates from a product with a recognizable name, when compared to a generic equivalent. A strong brand name works as a credible signal of product quality for uninformed buyers and generates price premiums as a form of return to

branding investments. Companies can create brand equity for their products by making them memorable, easily recognizable, and superior in quality and reliability. Overall, the Parle products enjoy a combined brand equity worth ₹ 8500 crores (₹ 5000 crores Parle-G, ₹ 1000 crores 20-20 and Magix Cream each and ₹ 500 crores each of Krackjack, Monaco and Hide and seek). Parle-G, the flagship brand of Parle group enjoys the highest brand equity worth ₹ 5000 crores.

- (c) Brand promotion may be defined as the element of marketing mix that aims at informing, reminding, persuading and influencing the customers so that they purchase the brands of the company. Brand promotion is applied communication used for informing and reminding the customers of the company's marketing package or offer and for advocating the customers to go in for the company's brands in the competitive market. To bring about brand promotion, the following methods are employed :

**1. Advertisement :** Advertisements in the newspapers, radio, TV and other media are regularly given to make a particular brand well-known among consumers. It is due to repeated advertisements that Lux, Colgate, Titan and other brands have become popular in the market.

**2. Publicity :** Mass media such as newspapers, radio and television give news and views about an organisation and its products or services in such a way that the image of the organisation is enhanced. News releases (for the opening of a new showroom), features articles, letters to the editor, press conference and audio visual material are the main techniques of publicity.



GURUKUL

# COMMERCIAL APPLICATIONS

# 2017

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt **all** questions from this Section)

#### Question 1.

State one difference between each of the following :

- (a) Consumer Goods and Producer Goods. [2]
- (b) Orientation Training and Refresher Training. [2]
- (c) Transfer and Promotion. [2]
- (d) Historical Costs and Predetermined Costs. [2]
- (e) Advertising and Publicity. [2]

#### Question 2.

- (a) Mention two features of Services. [2]
- (b) What are indirect expenses ? Give an example. [2]
- (c) Mention the advantages of cost plus pricing. [2]
- (d) Explain any two impacts of Acid Rain. [2]
- (e) Mention any two merits of internal sources of recruitment. [2]

#### Question 3.

- (a) Distinguish between Shut Down Cost and Sunk Cost. [2]
- (b) Why is Dialogue an important element in public relations ? [2]
- (c) State any two features of a Balance Sheet of a company. [2]
- (d) Explain briefly Employee Relations as a scope of public relations. [2]
- (e) Explain current assets with an example. [2]

#### Question 4.

Justify a reason either for or against each of the following :

- (a) Introduction Stage in a Product Life Cycle is not very risky. [2]
- (b) Accounts should disclose all material information (with reference to the concept of accounting). [2]
- (c) Recruitment is a process of elimination. [2]
- (d) Branded goods are normally sold by inspection. [2]
- (e) Training reduces employee absenteeism. [2]

### SECTION-B (60 Marks)

(Attempt **any four** questions from this Section)

#### Question 5.

- (a) Modern marketing has created several non-traditional markets. Explain the main types of non-traditional markets. [5]

- (b) Explain the advantages of branding to producers and consumers. [5]

- (c) Explain the Maturity stage and Decline stage of a Product Life Cycle. [5]

#### Question 6.

- (a) Explain briefly the various elements of cost. [5]
- (b) Explain :
  - (i) The Dual Aspect Principle.
  - (ii) The Going Concern Concept. [5]
- (c) Write five differences between Receipts and Payments Account and Income and Expenditure Account. [5]

#### Question 7.

- (a) Explain any two functions of the Reserve Bank of India. [5]
- (b) Explain 'Selection Interview' and 'Checking References' as steps in the selection procedure. [5]
- (c) Explain :
  - (i) Industrial Advertising.
  - (ii) Concept Advertising. [5]

#### Question 8.

Write short notes on :

- (a) (i) Bhopal Gas Tragedy.  
(ii) Chernobyl Disaster. [5]
- (b) Describe the role of Sales Promotion and Publicity in promoting a brand. [5]
- (c) Explain Persuasion as an element of Public relations and mention any two principles of persuasion. [5]

#### Question 9.

### CASE STUDY

Patanjali Ayurved Ltd. (PAL) is an FMCG company established in 2006 by Acharya Balkrishna and Baba Ramdev. It is located in the industrial region of Haridwar. It was started with the objective of promoting the ancient science of Ayurved in coordination with the latest technology. It manufactures mineral and herbal products and offer healthcare solutions.

They started as a small company, but their revenue kept growing from ₹ 163 crores in 2009-10 to ₹ 5000 crores in 2015-16 and they are targeting for 10000 crores in 2016-17.

They manufacture products using Ayurved and natural components. Their products are cheaper than alternatives in the market due to low production and marketing costs. They have over 4700 retail outlets and do a lot of online selling. They are also planning to open outlets at railway stations and airports. They are

now tying up with various other retail chain stores like Future group retails, Modern trade stores, Reliance retail, Hypercity and Star Bazaar.

With reference to the above :

- (a) Name and discuss the pricing strategy used by Patanjali Ayurved Ltd. (PAL). Why has this strategy been successful ? [5]
- (b) PAL's target is to double their sales in the current financial year. How do they plan to achieve this ? [5]
- (c) PAL has not been using sales promotion techniques to increase their sales. Discuss any five such techniques that you feel would help the company to achieve its sales target. [5]

#### Question 10.

#### CASE STUDY

Mr. Raj is a newly appointed Human Resource Manager of the Hyderabad branch of a foreign bank.

The bank is looking for a rapid expansion of its business in the Southern region. So it wants to recruit, select new employees and launch various schemes and offers. Being an organisation of repute, it is highly essential to select efficient people who will be able to contribute effectively to the growth of the business. The entire responsibility of developing a good work force for business expansion in the region is entrusted to Mr. Raj.

With reference to the above :

- (a) Name the key function of Human Resource Management which Mr. Raj is expected to perform. Mention the key activities under this function. [5]
- (b) Describe any two roles of Human Resource Management. [5]
- (c) Briefly explain any five tests required for selecting employees. [5]

## ANSWERS

### SECTION-A

#### Answer 1.

(a)

| Consumer Goods                                                                                                                                                             | Producer Goods                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Consumer goods refers to the goods that are purchased for direct consumptions by final consumers to satisfy needs or want. Consumer good are also known as final goods. | Intermediate goods, also called as producer goods or semi-finished products are those goods which are used as inputs in the production of other goods or for the further manufacturing of goods including final goods. |
| 2. For example toothpaste, T.V., bread etc.                                                                                                                                | For example-steel, car engines, etc.                                                                                                                                                                                   |

(b)

| Orientation Training                                                                                                                                                                                                                                                 | Refresher Training                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Orientation training refers to the training given to the new employees. The training is imparted by a competent and experienced executive, who provides knowledge about the work, tools, equipments, techniques and situational problems or total infrastructure. | Such training is designed to revive the earlier learning and to train old employees in the use of new concepts, tools and equipments. Short-term refresher courses are organised in work procedures for this purpose. |
| 2. The objective is to make the employees aware of the new organisation, its policies, culture, values and job duties.                                                                                                                                               | Such training helps to avoid personnel obsolescence.                                                                                                                                                                  |

(c)

| Transfer                                                                                                                                                                                                                                                                              | Promotion                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. A transfer involves the shifting of an employee from one place to another, without any change in responsibility, rank or compensation. If the management finds that an employee is misfit or he or she will be more useful at some other place, then he or she may be transferred. | Promotion refers to shifting an employee to a higher position carrying higher responsibilities, facilities, status and pay. Promotion is based upon both the seniority and the capabilities of the employee. |
| 2. It is the horizontal movement of an Employee.                                                                                                                                                                                                                                      | It is the vertical movement of an employee.                                                                                                                                                                  |

| (d) | Historical Costs                                                                                                                                                  | Predetermined Costs                                                                                                                                                                                                                             |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 1. Historical costs are the costs at which an asset is ascertained on the basis of its nominal or original value cost, when the asset is acquired by the company. | These are estimated or budgeted costs computed in advance of production keeping in view the past costs and various other factors. For example : Raw material, labour, factory expenses, future trends can help in estimating future costs. etc. |

(e) Refer to ICSE Paper, 2019, Answer Q. 1(e).

#### Answer 2.

(a) The two features of services are :

1. **Services are intangible** : Services are intangible. They cannot be touched, seen or heard. They can be felt only after consumption. They are abstract and invisible.

2. **Services are perishable** : Services cannot be kept in inventory. They cannot be produced ahead of time and stocked for the periods of peak load of demand. Thus, they are perishable.

(b) **Indirect expenses** : Indirect expenses refer to the expenses incurred on those items, which are not directly chargeable to production. Salaries of storekeeper, foremen, stationery are examples of indirect expenses.

(c) The advantages of the cost plus pricing are :

1. From this, the company knows exactly the amount of expenditure that has been incurred on making a product and therefore, they can add profit margin accordingly, which helps in achieving the desired revenue for a firm.

2. It discourages cut-throat competition in the market.

(d) The impacts of acid rain are :

1. It makes the soil acidic in nature, resulting in reduction of plant growth and animal growth.

2. It causes serious health disorders in humans such as cancer, skin disorders etc.

(e) Two merits of internal sources of recruitment are :

1. **Economical** : Internal sources of recruitment are economical because the enterprise is not required to incur expenses on recruitment from outside the organisation. There will be lesser number of candidates and the most suitable candidate is selected according to merit or seniority or both.

2. **Availability of experienced employees**: Promoted employees have already been performing the job as a junior before their promotion, so they are well aware about the organisation's policies, functioning and do not face any difficulty. The organisation is also benefitted because employees are efficient and experienced and they start working without any formal training and induction.

#### Answer 3.

(a)

| Shut Down Cost                                                                                                       | Sunk Cost                                                                                        |
|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| 1. Shut down costs are the expenses that have to be incurred during the shutdown or stoppage of business operations. | Sunk costs are the historical or past cost that has already been incurred and cannot be changed. |
| 2. E.g., rent insurance of factory during its closure.                                                               | E.g. Investment already made in a factory building.                                              |

(b) **Dialogue is an important element in Public relations because :**

1. It is a reasonable exchange of ideas and opinions.

2. It helps to reduce prejudice and builds up mutual confidence.

3. Effective dialogue requires impartial listening and understanding.

(c) Refer to ICSE 2020, Answer Q. 3(c).

(d) Public relations start and end with human beings. It is not a concept which is oriented only towards external stakeholders. It is equally applicable towards the employees of the organisation. An organisation cannot be good until, its people are good and have amicable relations. So, the management must endeavour to develop mutual and open communication with the employees and among the employees to develop mutual understanding.

(e) **Current Assets** : Current assets refer to all those assets, which can be convertible into cash within a period of one year. These include cash, debtors, closing stock and prepaid expenses etc.

#### Answer 4.

(a) **Against** : Introduction stage in a Product Life Cycle is the most risky stage because at this stage the production and distribution costs are very high and the sales revenue is low due to low volume of sales. So, if the product is not accepted in the market, then the firm may suffer losses.

(c) **Against** : Recruitment is not the process of elimination but it is the process of searching for prospective employees and stimulating



and encouraging them to apply for jobs in an organisation. It is the positive activity. It aims at reaching as many job-seekers as possible for jobs in the enterprise.

- (d) **Against** : Brands creates a kind of trust among the consumers regarding the products of the seller. So, normally a branded product does not need too much inspection, if a consumer is using the products of that brand regularly. These goods are sold by their trademark, brand name etc. So, to such consumers, the branded goods can be sold without inspection.
- (e) **For** : Effective training improves the self-confidence and job satisfaction of employees. Well-trained employees take greater interest in their job and derive a sense of security. By boosting the morale of employees, training helps to reduce absenteeism and labour turnover.

### SECTION-B

#### Answer 5.

- (a) Refer to ICSE Paper, 2019, Answer 9 (c).
- (b) Advantages of branding to producers :
- Builds up reputation and image** : Branding represents a certain standard of quality, which the customers trust. When the producer continuously maintains the same level of quality of the products, it helps in building up the reputation and image.
  - Builds customer loyalty** : Branding develops brand loyalty among consumers which may prove very beneficial in the lifetime of the company's products. A brand loyal customer may provide very big returns to the company in terms of continuous purchase.
  - Differentiation** : Branding helps a producer in differentiating and identifying one product from the other products.
  - Control over the distribution channel** : A strong brand owner has a good control over the whole distribution system. This helps the producer to get better co-operation of all the channel partners.
  - Less marketing expenses** : Branding helps in reducing the marketing expenses over a period of time by brand loyal customers. Retaining old customers is less costly in comparison to acquiring new customers.

Advantages of branding to consumers :

- (1) **Easy to identify** : Branding helps to differentiate and identify the products of a particular supplier. If the customer has the trust on that brand, he or she doesn't have to spend time in the selection of that product.

(2) **Assurance of quality** : A brand signifies a particular level of quality. In purchasing the branded product, consumers need not worry about the standards of quality of the product. (iii) **Social status** : Branded products are a display of social status and recognition.

- (c) 1. **Maturity stage** : During this stage, sales continue to grow, but at a decreasing rate and additional expenditure is involved in product modification and improvement or broadening the product line. Marketers have to adopt measures to stimulate demand and face competition through additional advertising and sales promotion. Overall marketing effectiveness becomes the key factor in the stage of maturity. Low prices, increasing competition, rising marketing costs and declining profits are the features in this stage.
2. **Decline stage** : Refer to ICSE Paper, 2020, Answer 10 (c).

#### Answer 6.

- (a) There are three basic elements of cost :
1. Material 2. Labour and 3. Expenses.
  1. **Material cost** : Material cost refers to the cost of substance from which the product is made. Materials enter into the production process and form part of the shed product. For example, paper used in book. Materials can be divided into categories.
    - (a) **Direct Material** : All materials which become an integral part of the finished product and which can be easily measured and directly charged to product are called direct material.
    - (b) **Indirect Material** : Indirect materials are those materials which cannot be directly assigned to the specific product but which can be apportioned. For Example, Oil, Nails, Small tools etc.
  2. **Labour Cost** : The cost of human effort required for converting the material into the finished product is called labour cost. It is the aggregate amount of remuneration paid to workers, supervisors and managers. Labour can be direct or indirect.
    - (a) **Direct Labour** : The labour which can be wholly and directly identified with a particular product is called direct labour, e.g., wages paid to the machine operator of wages paid to the carpenter in furniture factory.
    - (b) **Indirect Labour** : Indirect labour means the labour which cannot be wholly and directly identified with a particular product. It is the labour employed for performing tasks incidental to manufacture. Wages paid to storekeeper, foremen, timekeeper, inspectors, etc., are examples of indirect labour.

**3. Expenses :** Cost incurred other than on material and labour for production and distribution and for management of the organisation are called expenses. Expenses may be direct or indirect as follows :

**(a) Direct Expenses :** The expenses which can be wholly and directly identifiable with a particular product are called direct expenses. Hire charges of machine used for a particular job, rent of the room

in which a specific product is being produced are example of direct expenses.

**(b) Indirect Expenses :** Indirect expenses are those expenses which cannot wholly and directly identified with a specific product or job. These expenses include factory expenses, office expenses and selling expenses.

- (b) (i) Refer to ICSE Paper 2020, Answer Q. 6(b).  
(ii) Refer to ICSE Paper 2019, Answer 8 (a)(ii).

**(c) Distinction between Receipts and Payment Account and Income and Expenditure Account**

| Receipt and Payment Account                                                                                            | Income and Expenditure Account                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1. It is a summarized statement of cash transactions of a particular period.                                           | It takes place of Profit and Loss Account in non-profit organisation.                           |
| 2. It must necessarily commence with the opening balance of cash.                                                      | It does not commence with any balance.                                                          |
| 3. Restricts itself to cash transactions only, and does not take any account of outstanding income or expenses.        | Includes all incomes whether received or accrued, and all expenses whether paid or outstanding. |
| 4. Makes no distinction between capital and revenue receipts or payments, and includes both capital and revenue items. | Includes revenue items only.                                                                    |
| 5. Receipts are shown on the debit side and payments on the credit side.                                               | Income is shown on the credit side, and the expenses on the debit side.                         |

**Answer 7.**

(a) Refer to ICSE Paper, 2020, Answer Q. 6(c).

**(b) Selection interview :** Selection Interview are a means to assess the suitability of a candidate for a job in terms of intelligence, communication skills, decision making ability and personality. It also serves as a means of cross verifying the information given in the application forms by the candidates. It also provides an opportunity to the candidates to prove their suitability for the job. e.g., Stress Interview.

**Checking references :** References are generally required to enquire about the previous conduct of those persons who have been found suitable in the interviews and tests. References can be checked from the previous employers, last attended colleges or from any other reliable source. Before forming a balanced opinion, it is necessary to enquire from three to five persons about the conduct of the prospective employee. However, this exercise may not always produce the desired results because; (i) No candidate will cite the name of a referee who might speak unfavourably about him; (ii) The referee may not always respond and (iii) Due to a prejudice the referee may deliberately speak against the candidate.

**(c) (i) Industrial or Business to Business**

**Advertising :** An advertisement which is directed at businesses or industrial buyers, is known as industrial or business to business advertising. Advertisements for printing machines, oil expellers, plastic moulding machines, other manufacturing machines and equipments, agricultural appliances, raw materials, etc., falls in this category of advertising.

**(ii) Concept Advertising :** Concept advertising is the advertising which intends to promote an idea or thought. This idea or thought may not necessarily be of any product or service, rather it may be focused on some habits. In other words, this may be intended to motivate the viewers to start or stop some activity or act in a particular way. For example, advertising may be promoting to clean teeth two times a day or wash hands before every meal or not to defecate in open etc.

**Answer 8.**

**(a) (i) Bhopal gas tragedy—An industrial disaster :**

One of the most tragic man-made disaster took place on 3rd December, 1984 in the form of worst Bhopal gas industrial accident that happened in Union Carbide's pesticide manufacturing unit in the industrial town of Bhopal, India. About 45 tons of highly toxic and reactive methyl

isocyanate (MIC) gas leaked out of the tank for nearly two hours and escaped into the air, spreading within a radius of 8 kilometers over the city which was inhabited by approx 9 lakh people. 3,800 people died immediately while 100,000 to 200,000 people were reported with eye problems, respiratory difficulties, cardiac failure, immune and neurological disorders. Spontaneous abortions, stillbirths and off-springs with genetic disorder are still being found even after so many years of this incident.

(ii) Refer to ICSE Paper 2020, Answer Q. 8(a) (i).

- (b) The role of sales promotion and publicity is the following in the promotion of a brand :

**Sales promotion :** Sales promotion refers to the short-term incentives that encourage or attract customers to buy a brand immediately. Sales promotion aims at increasing sales, disseminating information, introducing new products, attracting new customers etc. Sales promotion mainly offers additional value on buying a brand. The basic goal of sales promotion is to increase the volume of immediate sales or to clear the stocks lying for sometime in the shop or store. The sales promotion may initially tempt the buyers to try a new brand, which has the possibility of becoming their regularly purchased brand. The various types of incentives used for this Sales promotion are: percent-off, special discount, free gifts, free extra quantity in the pack, three for two offer (take three, pay for two), coupons, contests etc.

**Publicity :** Publicity refers to the non-paid and mainly non-personal medium of dissemination of positive information regarding the brand with the objective of stimulating its demand. The American Marketing Association has defined publicity in the following words - "Publicity can be defined as any form of commercially significant news about a product, an institution, a service or a person, published in space or radio time that is not paid by the sponsor." Issue of press release, getting an honourable mention in the media, doing charitable activities for social good, taking up charitable causes, giving donation etc., are all designed with the objective of getting publicity. As publicity is non-paid form of communication, it is considered to be more trustworthy than advertisement.

- (c) **Persuasion as an element of Public relations :** Persuasion can be defined as the process of generating interest of an individual towards an event, idea, object, product, service or towards another person, by using written or spoken words or audio-visual aids like videos or films. It

is a process of communication which deals with reason and appeals. Though, the basic objective of persuasion is to modify the target audience behaviour as per the wish of the persuader, it does not use force and the target audience remains free to exercise their will.

The two principles of persuasion are :

1. Acceptance of message
2. Harmony.

#### Answer 9.

- (a) The pricing strategy used by Patanjali Ayurved Ltd. (PAL) is known as Penetration Pricing. Penetration pricing is the strategy in which the seller keeps prices of his products lesser than the competitors. The basic objective of this strategy is to increase the acceptability of product by increasing its trial and then usage by the consumers and ultimately capture a big market share. This strategy has been successful due to the low cost of production and marketing of the firm.

- (b)
1. PAL manufactures products using Ayurveda and natural components.
  2. Their products are cheaper than alternatives in the market.
  3. Their production and marketing costs are kept low.
  4. They have over 4700 retail outlets and do a lot of online selling.
  5. They are also planning to open outlets at railway station and airports.
  6. They are now tying up with various other retail chains like Future group retails, Modern trade stores, Reliance retail, Hypercity and Star Bazaar.
  7. PAL has the credibility of Baba Ramdev and the promise of natural products at affordable prices.
  8. They have also diversified into cosmetics, food, beauty and baby care products.

- (c) Following are various methods of sales promotion which can be used to increase the sales of the PAL's products :

1. **Ayurved free check-up camps :** PAL can regularly organize small free check-up camps in the residential areas which may increase the knowledge of the residents about Ayurved's benefits and provide remedies of their problems through PAL.
2. **Discount on minimum purchase :** PAL does not give any discounts on its products. It can give discounts on the minimum purchase of the products. This will encourage customers to buy more ayurved products.



**3. Product bundling :** PAL can offer products in bundles which can be priced cheaper than the sum of their individual price. PAL can bundle fast moving goods and some slow moving goods together.

**4. Lucky draws :** Lucky draw coupons can be provided in the packaging of the products and some benefits or rewards like free two days accommodation in Patanjali Ashram, free entry in yoga camps etc., can be given to the users if their coupon has been drawn in the lucky draw.

**5. Competitions :** Various competitions like essay competition, yoga competition, run for health etc., can be organised to increase the knowledge about importance of Ayurved in healthy lifestyle.

#### Answer 10.

(a) The key functions which Mr. Raj is expected to perform is known as Staffing or Procurement function. This is an operative function of Human Resource Management. Under this function following key activities are performed :

1. Recruitment, *i.e.*, searching for the right person for the right job.
2. Selection, *i.e.*, finalizing suitable candidates for the job.
3. Placement, *i.e.*, assigning suitable jobs to the selected candidates so as to match employee's qualifications with job requirements.
4. Training and Development, *i.e.*, imparting with them the necessary skills, which help them to perform their jobs in a better way.

(b) Two roles of Human Resource Management are :

**1. Manpower planning :** This is one of the important functions of the human resource management, *i.e.*, to assess the manpower requirements of an organisation. For this purpose, the human resource department works with all the departments of an organisation and helps them in determining and finalizing their manpower requirements. On that basis, the HR department

determines a consolidated man power required for the organisation.

**2. Advisory role :** The HR department provides necessary advice to the top management in the development of positive working environment for the people. HR department, on the consent of top management, develops such HR policies, which are helpful in developing such environment.

(c) Following are the tests conducted for selecting an employee :

**1. Intelligence tests :** These tests are used to measure a person's capacity for reasoning and comprehension in terms of his memory, mental alertness, vocabulary and grasping capacity. A candidate's IQ or mental alertness can be estimated through intelligence tests.

**2. Aptitude tests :** Aptitude means the potential which an individual has for learning the skills, which are required to do a job efficiently. Aptitude tests measures an applicant's capacity and his/her potential for development. These tests are the most promising indices for predicting worker's success.

**3. Proficiency tests :** Proficiency tests seek to measure the skills and abilities, which the candidate already possesses at the time of testing. Trade tests or skill tests are examples of proficiency tests. They determine whether the claims made by the candidate about his or her skills and abilities are proved by his or her actual test performance or not.

**4. Interest tests :** Interest tests identify patterns of interest, that is, areas in which the individual shows special concern, fascination and involvement. These tests will suggest what types of jobs may be satisfying to the employees.

**5. Personality tests :** Personality tests are aimed at assessing the emotional balance, maturity level, temperament, etc., of the candidates. It is very difficult to design and use these tests as they are concerned with discovering an individual's emotional reactions, maturity, etc.





# COMMERCIAL APPLICATIONS

# 2016

## QUESTIONS

### SECTION-A (40 Marks)

(Attempt all questions from this Section)

#### Question 1.

State a difference between each of the following :

- (a) Marketing and Selling. [2]
- (b) Renewable resources and Non-renewable resources. [2]
- (c) Apprenticeship Training and Internship Training. [2]
- (d) Direct Cost and Indirect Cost. [2]
- (e) Cash credit and Overdraft. [2]

#### Question 2.

- (a) What are convenience products ? Give two examples. [2]
- (b) What is understood by the Going Concern Concept of Accounting ? [2]
- (c) Mention any four causes of the Greenhouse Effect. [2]
- (d) What are the advantages of 'Account Payee' crossing of a cheque ? [2]
- (e) What is a 'Recurring Deposit Account' ? [2]

#### Question 3.

- (a) Explain any two qualities of a good salesman. [2]
- (b) What are Open Market Operations of a Central Bank ? [2]
- (c) Why are interviews an essential part of the selection procedure ? [2]
- (d) What is 'Indirect Labour Cost' ? [2]
- (e) Mention any two features of a Balance Sheet. [2]

#### Question 4.

Justify a reason either for or against each of the following :

- (a) On the job training includes practical and theoretical learning. [2]
- (b) A demand draft is preferable to a cheque. [2]
- (c) Central Bank is the 'lender of last resort'. [2]
- (d) Training is related to improving skills for performing a job. [2]
- (e) In a competitive market, parity pricing is the appropriate strategy. [2]

### SECTION-B (60 Marks)

Attempt any four questions from this Section.

#### Question 5.

- (a) Explain 'Sales-Oriented Stage' and 'Marketing-Oriented Stage' of Marketing. [5]

- (b) Why is Service becoming more important than a Product ? Give five reasons. [5]
- (c) Explain any five steps generally involved in the selection of employees. [5]

#### Question 6.

- (a) Explain the five consumer rights as per the Consumer Protection Act, 1986. [5]
- (b) Explain any two elements of Public Relations. [5]
- (c) 'All vacancies at various levels in an organisation cannot be filled through an internal sources of recruitment'. [5]  
Explain any five external sources of recruitment.

#### Question 7.

- (a) Explain fixed cost with suitable example. [5]
- (b) Explain variable cost and semi-variable cost with suitable examples. [5]
- (c) Explain the first two stages of Product Life Cycle. [5]

#### Question 8.

Write short notes on :

- (a) (i) Principle of Timeliness. [5]
- (ii) Money Measurement Concept [5]
- (b) Newspapers as a media for advertising. [5]
- (c) Narmada Bachao Andolan and the Chipko Movement. [5]

#### Question 9.

### CASE STUDY

Maruti Nero, a product of the Maruti group has created a very good reputation in the automobile market. It has nearly 180 outlets and operates in nearly 100 cities. The company provides genuine spare parts and 24 × 7 roadside assistance with longest warranty coverage. It has collaboration with Tata Motors regarding its sale, service and spares. There are many dealers of Tata Motors in Delhi and outskirts, so this has rapidly increased the sale of the car. The company normally goes for institutional advertising in most of the cases. It is indeed a reality that Maruti with minimum advertising has become a popular brand.

With reference to the above :

- (a) What is Institutional advertising ? State and explain the other types of advertising. [5]
- (b) What is a brand promotion ? Explain the methods used for brand promotion. [5]
- (c) Suggest and explain any two suitable media to be used by the company to advertise its product. [5]

**Question 10.**

This statistic shows the global smartphone market share held by Nokia each quarter from 2007 to 2013. In the third quarter of 2007, Nokia's market share was 48.7 percent. By the third quarter of 2012 the company's market share had slipped to just 3.5 percent.

Nokia is a Finnish company head-quartered in Espoo, Finland. The company has a long history dating as far back as 1865 and first began developing what would later be modern mobile phone technology in the 1960s. The company has previously been a very strong competitor in the mobile phone and telecommunication market. While the company has struggled to maintain a significant share of the smartphone market, and has also recorded multiple losses in recent quarters, when it comes to feature phones, the company does maintain a relatively secure share of the market when compared to other vendors. The company also continues to perform well in the Asia-Pacific region as well as in the Middle East and Africa where they have previously recorded the greatest sales. Across the North American market however, the company has recorded very poor sales.

Previously Nokia used the operating system Symbian for its smartphones. Until 2010, Symbian was performing well in the global market but has been overtaken by the very dominant Android system and also Apple's iOS. As of February 2011, Nokia made the announcement that they would be switching to the Microsoft Windows OS. The company was hoping to be able to make a comeback in the smartphone market with the adoption of the Windows operating system. In 2012 however, sales saw another decrease when compared to the previous 2 years. The Windows mobile operating system did not prove to be popular and market share slipped further. Even after Nokia's high-profile acquisition by Microsoft, the market share of the brand still remains at a dismal 3 percent.

With reference to the above :

- Explain any five uses of Product Life Cycle to a business enterprise like Nokia. [5]
- Explain the various steps taken by Nokia after 2010 to improve the brand image. [5]
- What are the promotional activities that can be undertaken to increase the market share of Nokia ? [5]

**ANSWERS****SECTION-A****Answer 1.**

- (a) Refer to ICSE Paper 2020, Answer Q. 1(a).

| (b) | Renewable Resources                                                                                                                                          | Non-renewable Resources                                                                              |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
|     | A renewable resource is one that naturally replaces itself at a rate near or equal to the rate at which it is being used.<br>Ex : Wind energy, Solar energy. | A non-renewable resource does not replace itself at the rate it is being used. Ex : Coal, Petroleum. |

| (c) | Apprenticeship Training                                                                                                                                         | Internship Training                                                                                                                                    |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 1. An apprenticeship training is a training program conducted in an industry or undertaking where the trainee gets a chance to learn and earn at the same time. | An internship training is a training program whereby the college students get a chance to work in the respective field and gain real world experience. |
|     | 2. Part of vocational education and training.                                                                                                                   | May or may not be a part of formal education.                                                                                                          |

- (d) Refer to ICSE Paper, 2019, Answer 1 (b).

| (e) | Cash Credit                                                                                                                                       | Overdraft                                                                                                                                                                        |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | 1. Cash credit is for the longer period of time.                                                                                                  | Overdraft is for the shorter period of time.                                                                                                                                     |
|     | 2. Cash credit is an arrangement under which bank advances cash loan up to a specified limit to the customers against a bond or other securities. | Overdraft is an arrangement under which a current account holder can withdrawn more than deposited amount but for short period against some interest charged for over withdrawn. |

**Answer 2.**

- (a) Convenience goods are those goods, which are widely and easily available in the market and require minimum shopping efforts on part of the buyers. These goods basically include items

that we use in our day to day life such as soaps, detergent, toothpastes, chocolates, etc. These goods are non-durable in nature. These are fast moving consumer products.

- (b) Refer to ICSE Paper, 2019, Answer 8 (a)(ii)

- (c) The causes of greenhouse effect are :
1. The most important cause of greenhouse effect is the burning of fossil fuels. Fossil fuels contain carbon, which on burning combines with oxygen in the atmosphere and form carbon dioxide.
  2. Atmospheric water vapour is a significant greenhouse gas. Increased water vapour and changes in atmospheric circulation could also create changes in cloud cover.
  3. Halocarbons are well known as the depleters of stratosphere ozone but they are also significant as greenhouse chemicals. The impact of chlorofluorocarbons is 15,000 times than that of carbon dioxide.
  4. Hydroelectric reservoirs and bacterial decomposition of flooded peat and forest biomass generate methane, which contributes about 12% of greenhouse effect.
- (d) Account Payee (A/C Payee) are the words added to the crossing on a cheque to ensure that the cheque is paid only into the account of the person in favour of whom the cheque is signed. This step makes the signed cheque a non-negotiable instrument, and provides protection against its fraudulent conversion.
- (e) Recurring Deposit is a special kind of term deposit, offered by banks in India which helps people with regular incomes to deposit a fixed amount every month into their Recurring Deposit account and earn interest at the rate applicable to fixed deposits.

**Answer 3.**

- (a) Refer to ICSE 2020, Answer Q. 5(c).
- (b) Open Market Operations (OMO) are the market operations conducted by the Reserve Bank of India by way of sale or purchase of Government securities to or from the market with an objective to adjust the rupee liquidity conditions in the market on a durable basis. When the RBI feels there is excess liquidity in the market, it resorts to sale of securities thereby sucking out the rupee liquidity. Similarly, when the liquidity conditions are tight, the RBI will buy securities from the market, thereby releasing liquidity into the market.
- (c) The interview is an essential part of selection procedure because it allows an employer to collect the detailed information about the job-seeking candidate. Interviewer collects information about the candidate's cultural and educational background, work experience, future plans, aspirations, intelligence quotient, communication skills, personality type, interests and social behaviour. An employer directly speaks to the

candidate and judges him or her. By interviewing the candidate, an employer can never go wrong.

- (d) Refer to ICSE Paper, 2018, Answer 7 (a)(ii)

- (e) Refer to ICSE Paper, 2020, Answer 3 (c)

**Answer 4.**

- (a) **For :** Under on-the-job training method, employees are assigned a specific job and they learn by performing the job in the actual work situation. Therefore, it is more of learning by doing. Usually a professional trainer serves as course instructor using hands on training often supported by formal classroom training. Thus, on-the-job training includes practical and theoretical learning.
- (b) **For :** A demand draft (DD) is preferred over a cheque because a DD can be issued to non-account holders, whereas only the saving and current account holders get a cheque facility. Moreover, cheques can be dishonoured due to insufficient account balance and the drawer can ask the bank to stop payment of the cheque even if it is delivered to the payee. On the other hand, DD's guarantee certainty of payment to the payee.
- (c) **For :** Central Bank is called 'lender of the last resort' because whenever commercial banks fails to meet their own financial requirement sources, they can obtain it from the Central Bank in form of loans and rediscounting of loans. Central bank do so in order to retain the public confidence in the country's financial system.
- (d) **For :** Training is teaching the skills, knowledge, and competencies that are needed for employees to perform a specific job within the workplace and work environment. Training uses the regular or existing workplace tools, machines, documents, equipment, knowledge and skills which are necessary for an employee how to learn to effectively perform his or her job. Thus, training is related to improving skills for performing a job.
- (e) **For :** 1. Parity pricing strategy is applied when there is severe or acute competition and the competitive products are of the same type.  
2. When companies collectively apply this strategy, prices are stabilized and price wars are avoided.

**SECTION-B****Answer 5.**

- (a) Sales orientation is a business approach of making profits by focusing on persuasion of people to buy the products instead of understanding the customer needs. Emphasis is put on advertising and improving the abilities of the sales force. The product and the production capacity precede



the customer. This approach doesn't try to understand the needs of the customer like increase in the quality of the product, better design, low price, etc., instead tries to push the sales of the product by providing exciting offers to the customers.

In highly competitive environments, sales-oriented businesses usually fail.

A Marketing oriented approach means a business, provides what customers want. The decisions taken are based around information about customers' needs and wants, rather than what the business thinks is right for the customer. Most successful businesses take a market-oriented approach, because customers have become more knowledgeable and require more variety and better quality. To compete, businesses need to be more sensitive towards their customer needs otherwise they will lose sales to their rivals.

(b) Service is becoming more important than a product due to the following reasons :

**1. Increasing urbanisation :** Urbanisation has been one of the cause of expansion of service sector in India. There has been shifting of population from rural to urban areas. Urbanisation leads to rise in demand for infrastructure services such as communications, public utilities and distribution services.

**2. Media :** Television, internet and other media have led to spurt in tourism. Modern technology has made business more comfortable. Tourism in turn has promoted all types of services such as hotel, restaurants, travel agents, amusement parks, event management, etc. Expanding world trade has also had a demonstration effect.

**3. Rise in per capita income :** Growing per capita income has led to demand for new and better services. Interior decoration, garden care, beauty parlours, slimming centres, health clubs, etc., are examples of these services. More leisure time creates demand for recreation and entertainment services such as water parks, etc.

**4. Women workforce :** Higher percentage of women in workforce has created demand for baby sitting, household domestic help and such other personal services.

**5. Greater Life Expectancy :** Increase in life span has led to greater demand for health care and related services. Greater concern for ecology and resource scarcity requires time sharing, pollution control and other services.

(c) The steps generally involved in the selection of employees :

**1. Preliminary interview :** It is the first occasion when candidates come into contact with the company's officials. The job-seekers are received by the receptionist or some other official who conducts a brief interview of the candidate to determine whether it is worth while for the candidate to fill up the application form.

**2. Application form :** The candidates who succeed in preliminary interview are asked to fill in the prescribed application form. It reflects the written record of the name, address, age, qualifications, work experience etc., of the candidate.

**3. Selection interview :** An interview is a purposeful exchange of ideas and information between two or more persons. Interview serves as a means of checking the information obtained through application forms and tests. It also provide an opportunity to the candidate to get information about the job and the company. Managers can judge the personality, communication skills and suitability of the candidate through face to face contact.

**4. Medical examination :** A physical examination of the candidate is necessary to ensure that they are physically fit for the job. Such an examination also helps to protect the employer against the risk of claims for compensation from individuals who already suffer from disabilities and diseases.

**5. Final approval :** The candidate who are short-listed after medical examination are finally approved by the head of the department in which they are going to work. Candidate are appointed on probation of one or two years. They are made permanent after they give satisfactory performance during the probationary period.

#### Answer 6.

(a) The Consumer Protection Act, 1986 provides for the following rights of consumers :

**1. Right to safety :** Consumers have the right to be protected against the marketing of goods and services, which are hazardous to life and property. Before purchasing, consumers should insist on the quality and guarantee of the product and service. They should prefer products carrying quality marks such as ISI, AGMARK, etc.

**2. Right to be informed :** Consumers have right to be informed about the quality, quantity, purity, potency, standard and price of goods. By getting all such information, consumers can make the right choice and protect themselves from unfair trade practices.

**3. Right to choose :** It means the right to be assured whenever possible of access to a variety of goods



and services at competitive price. It also includes the right to basic goods and services.

**4. Right to be heard :** It means consumer's interest must receive the consideration at appropriate forums. It also includes the right to be represented in various forums, constituted to consider the welfare of consumers.

**5. Right to seek redressal :** Consumers have right to seek redressal against unfair trade practices or unscrupulous exploitation of consumers. It also include the right to fair settlement of the genuine grievances of consumers.

(b) Refer to ICSE Paper, 2018, Answer 8 (a) (any two)

(c) The sources of external recruitment are :

**1. Advertisements :** Advertisements in newspapers and journals are the most widely used method of attracting candidates for all types of jobs. The recruitment for the job and terms and conditions of employment are given in the advertisement. Candidates evaluate themselves against job requirements and send applications.

This method is convenient and economical and generate large number of application due to its wide reach, which sometimes creates difficulties for the organisation.

**2. Employment exchanges :** An employment exchange is an office set up by the government for bringing together as quickly as possible those persons who are in search of employment and those employers who are looking for employees. Employment exchanges register unemployed people and maintain the records of their names, qualifications, etc.

**3. Educational institutions :** Sometimes recruiters are sent to educational institutions where they meet the members of the faculty and persons in charge of placement services who recommend suitable candidates. Some companies send representatives to professional meetings and conventions to recruit employees.

**4. Jobbers and Contractors :** When workers are to be hired at a short notice and without going through the usual selection procedure, jobbers and contractors serve as useful source of recruitment.

**5. Gate Hiring :** Generally small firms make recruitment of casual workers at the factory gate. Workers gather at the factory gate after reading the notice of vacancies. The suitable candidate is selected. This is used to fill temporary and casual vacancies.

**Answer 7.**

(a) A fixed cost is a cost that does not vary in short-term, irrespective of changes in production or

sales volume, or other measures of activity. A fixed cost is a basic operating expense of a business that cannot be avoided, such as a rent insurance and depreciation of plant. These are also known as the cash expenses that must be paid even if the business produces or sells a single product.

Fixed costs are the key to achieving economies of scale, *i.e.*, a company makes more profit per unit as it produces more units. As cost is spread over the units produced. **Ex.-** Rent, insurance, depreciation of plant.

For example, A Bicycle company has a lease for ₹ 50,000 per month. Which has to be paid irrespective of number of units produced. But if it produces 5,000 bicycles, the cost of the lease is spread over 5,000 units, or ₹ 10 per bicycle. And if the company sells 10,000 bicycles, it spreads the fixed cost of the lease over more bicycles. The cost of the lease is now ₹ 5 per bicycle.

Note that fixed costs are only fixed over a certain range of production volume. When production increases far enough, fixed costs increases.

(b) A **variable cost** is a corporate expense that varies with production output. It rise as production increases and falls as production decreases. Variable costs differ from fixed costs such as rent, advertising, insurance and office supplies, which tend to remain the same regardless of production output. Fixed costs and variable costs comprise total cost. **Ex.-** Direct material cost, Direct variable cost and Direct expenses.

A **semi-variable cost** is a mixture of fixed and variable components. Costs, which are fixed for a set level of production or consumption, becomes variable after the level is exceeded. It is also known as semi-fixed cost. This type of cost is variable in the sense that greater levels of production increase total cost. If no production occurs, then a fixed cost is still incurred. Labour costs in a factory are the example of semi-variable cost. The fixed portion is the wage paid to workers for their regular hours. The variable portion is the over-time pay that they receive when they exceed their regular hours.

(c) The life cycle of products is known as product life cycle like any living being, products also have a length of life. It begins when a product is launched in the market, it goes through several stages, and ends when its demand subsides. The four main stages are Introduction, Growth, Maturity and Decline.

**Introduction stage :** Refer to ICSE Paper 2020, Answer 10(c).

**Growth stage :** The growth stage is typically characterised by a strong growth in sales and

profits, and because the company can start to benefit from economies of scale in production, the profit margins, as well as the overall amount of profit, will increase. This makes it possible for businesses to invest more money in the promotional activity to maximise the potential of this growth stage. The company's promotional activities will tend to focus on expanding the market for the product into new segments usually either geographic or demographic, and supporting this by expanding the product family.

#### Answer 8.

- (a) (i) **Principle of timeliness** : Financial statements provide useful information, on the basis of which users take important decisions. If the statements contain old and late information they are of little use. Therefore, this principle states that the financial statements should be prepared quickly at the end of the accounting period. They should be made available to the users at the end of the earliest possible time. To ensure timely information, the Companies Act requires companies to report quarterly results of their operations.

(ii) Refer to ICSE Paper 2020, Answer 6(b).

#### (b) Newspapers as a media for advertising

Newspaper are a popular and widely used medium of advertising. It is used by business and corporation to promote their goods and services by displaying ads. These advertisement helps consumers to decide where to shop and what to buy.

Newspapers are a good media for advertising for the following reasons :

1. Newspapers have a wide reach.
2. Newspaper ads can be repeated many times. This helps in promoting a brand or a product.
3. Newspaper ads are economical as its covers a large chunk of population at a lower cost. There is fixibility as the message can be modified frequently.

Despite its numerous impressive advantages, newspapers suffer from a few minor disadvantages. One of the demerits is that a hasty reader may skip the ads and only focus on reading the news articles. Moreover, younger consumers often receive news, entertainment information and shopping opportunities via computers and portable electronic devices. Furthermore, newspaper advertisement's have short shelf life which, considerably limits each advertiser's ability to reach its target audience. Newspapers cannot be used for illiterates and the scope of art

and colour is also limited. To sum up, newspapers will continue to thrive and remain in business as an effective mode of advertising.

- (c) **Narmada bachao andolan** was started in 1986 under the leadership of Medha Patkar. It aimed primarily to educate those directly affected about the social and environmental impact of large development projects.

It began as a protest against the construction of dam in the Narmada Valley in general. The Andolan mobilized and organized residents of the Narmada Valley on human rights, and environmental issues related to big dams. The leaders of this movement are fighting against displacement and disregard of the rights of the people.

**Chipko movement** : Refer to ICSE Paper 2020, Answer 8. (a) (ii).

#### Answer 9.

- (a) The promotional message aimed at creating an image, enhancing reputation, building goodwill, or advocating an idea or the philosophy of an organisation, instead of sales promotion is called corporate or institutional advertising.

**The other types of advertising are :**

**1. Product advertising** : The main objective of product advertising is to promote the sale or reputation of a particular product, brand or service. It is sponsored by manufacturers, traders and other organisations to promote the uses, features, benefits and image of their products and services.

**2. Informative advertising** : This type of advertising contains information about a product/ service or institution. It makes consumers aware of the existence, features, uses of goods and services.

**3. Persuasive advertising** : This type of advertising is designed to persuade the consumers to buy a product or service or to support an idea.

**4. Concept advertising** : Its purpose is to stimulate the demand for a new type of product. Advertisement designed to change the life style of people is concept advertising.

- (b) Brand Promotion refers to raising customer awareness of a product or brand, generating sales and creating brand loyalty. It means informing, reminding, persuading present and potential customers to buy a particular brand. The main purpose of brand promotion is to build a market for the product and to meet competition. A few methods of brand promotion are explained below:

**1. Advertising** : Advertising is a means of communication with the users of a product or

service. It is a form of impersonal communication which is paid by an identified sponsor.

Advertisements are done via television, print media (newspapers, magazines, journals etc.), radio, press, internet, direct selling, hoardings, posters, etc.

**2. Sales promotion :** These are the set of marketing activities undertaken to boost sales of the product or service. It induces buyers to purchase a brand through various incentives like discount coupons, prize contests, money refund, etc.

**3. Personal selling :** Personal selling is a process that involves person to person or face to face exchange of dialogues between the buyer and the seller, where the purpose of such personal interaction is to make the buyer buy the promoted brand and wins his\her loyalty. The goal of personal selling is to generate more sales on behalf of the producers but it depends on direct communication and individualized effort of the sales person.

There are two kinds of personal selling: over the Counter Selling and Outside Selling.

**4. Maintaining and improving quality :** In order to promote their brands, business firms are continuously maintaining and improving the quality of their brands. Brands continue to enjoy confidence of consumers only when their quality is maintained and improved.

(c) Presently, there are two types of media which can be used by a business firm for advertising its product :

**1. Online advertising :** Taking into account its growing popularity and access, many business firms are opting to promote their products on the internet these days. There are two potent reasons why online advertising is suitable for advertising a product :

**(1) Economical :** Advertising on the internet is much more cost-efficient than using traditional mass market and niche media. Internet ads can be viewed by millions of people while being displayed all day and night, while television or radio ads generally last less than two minutes and are shown limited number of times per day. Cooperative advertising arrangements such as banner and link swaps can be completely free, allowing firms to reach large audiences with no expense.

**(2) Interactivity and feedback :** The Internet facilitates true two-way communication in advertising messages. By placing interactive ads on the Internet, marketers can use surveys, comments and usage statistics to fine-tune their

campaigns midstream and maximize their effectiveness. Linking online advertisements to social networking outlets can enhance the communication between your company and your customers even further, allowing you to receive genuine feedback on a consistent basis.

**2. Broadcast advertising :** A mass-market form of communication including television and radio, broadcast advertising has been the most dominant way to reach a large number of consumers. The following reasons lay emphasis on its effectiveness.

**(1) Strong impact :** Television advertising uses audio and visual effects to create a lasting impact. Marketers interact colour, sound, sight, drama and motion to ensure that their message is strong and persuasive. Additional tactics and props, such as attractive models, elaborative sets, catchy punch lines, enchanting graphics and audio-visual effects further enhance impact.

**(2) Mass coverage :** Maximum number of households own television sets in India. Cable networks, 24-hour programs and satellite channels have further hiked television viewership in the country, making the television a substantially lucrative mode of conveying an advertisement.

#### Answer 10.

(a) A product life cycle reveals some important facts on the basis of which a marketer can prepare his or her marketing programmes, policies and strategies. The uses of a product life cycle for an enterprise like Nokia is shared below :

**1. Helpful in forecasting of sales :** The study of different stages of life cycle of a product is helpful in sales forecasting. A sales forecaster possessing a perfect knowledge about the product life cycle will be able to establish cause and effect relationship and helps to arrive at some concrete conclusions.

**2. Helpful as a predictive tool :** By studying the product life cycle, marketing manager can be aware of the problems that a product faces at different stages of growth, maturity and decline. A marketer can take necessary and timely steps either to improve or modify the existing product or to develop a new product which can replace the existing product quite conveniently.

**3. Helpful as planning tool :** The study of product life cycle is an important tool in the hands of planners. This study discloses the marketing strategies and policies of competitors. On the basis of this information, the marketing manager of the business can prepare a suitable marketing plan.



**4. Helpful as a control tool :** The product life cycle is a helpful product tool in case of a company having different products. When the number of products are simultaneously introduced in the market, it is quite certain that not all of them may enjoy the same level of success. When the position of a product is monitored on the product life cycle, it indicates the changes required in the marketing strategy so as to completely exploit its potential and achieve market share. In this way, it serves as an effective tool.

**5. Helpful in framing marketing programme :** Different stages of product life cycle require different programmes. The introduction stage may need high advertising and personal selling activities. The growth stage may require promotion of brand rather than product. The maturity stage may need sales promotion activities and during the decline stage, decrease in the number of promotion activities may be required. Thus, by switching the marketing programme, a business enterprise like Nokia may attain the desired results.

(b) Nokia took two important measures to improve its brand image after 2010. These are :

**1. Introduction of microsoft windows OS :** Nokia launched its new phones with a new operating system *i.e.*, Windows operating system. However, this strategy to regain its lost glory failed to work as very dominant Android system and Apple's iOS has overtaken the market.

**2. Acquisition by microsoft :** Nokia needed an image makeover in the market as it was not being taken seriously at all. It was acquired by

Microsoft after 2010 with the aim of fighting the existing market giants. This was done with the hope to bring product quality and brand image at par with competitors in the world.

(c) It is clear from the case study that Nokia has reached its decline stage in the Product Life Cycle as the market for Nokia phones has shrunk. Nokia can use the following promotional activities to increase its market share.

**1. An effective public relations strategy :** A proactive public relation strategy comprising company newsletter, press releases, interviews, press conferences and participating in company's event sponsorship decision and programs are an example of such a solution where positive messages are sent through different mediums to the public, eventually establishing a positive reputation over time.

**2. Advertisements :** Nokia should employ corporate advertising techniques to enhance its image and build fundamental credibility for its line of products. It should simultaneously focus on selective demand advertising, which involves the placement of advertising messages intended to persuade customers about the benefits of a specific brand or product line.

All in all, the company needs to encourage consumers to think about buying the product. This is not possible only through advertising, but needs a focus on building up the brand and what it stands for. This has to be done by emphasizing Nokia's brand values through its reliable mobile phones. Also, this has to be reiterated through a focus on quality and value for money for the customer, among other things.

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## QUESTIONS

**(Two hours)**

Answer to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt all questions from **Section A** and **any four** questions from **Section B**.

The intended marks for questions or parts of question are given in brackets [ ].

### SECTION-A (40 Marks)

Attempt **all** questions from this Section

#### Question 1.

- (a) What do you mean by emotional development? [2]
- (b) State two uses of an A. T. M. card.\*\* [2]
- (c) How are investments different from savings?\*\* [2]
- (d) Define the term consumer.\*\* [2]
- (e) State any two objectives of consumer education.\*\* [2]

#### Question 2.

- (a) State two advantages of opening a bank account.\*\* [2]
- (b) What is meant by meal planning? [2]
- (c) What is the difference between secondary and tertiary colours?\*\* [2]
- (d) State the kind of curtains to be chosen for a room with a low ceiling. [2]
- (e) What do you mean by a work triangle? [2]

#### Question 3.

- (a) Define the term budget. [2]
- (b) State any two advantages of payment by cheque.\*\* [2]
- (c) List any two advantages of physical exercise. [2]
- (d) State the nutritional contribution of pulses and legumes. [2]
- (e) State the necessity of consuming raw fruits and vegetables. [2]

#### Question 4.

- (a) State two causes of food spoilage. [2]
- (b) List any two ways of serving food hygienically. [2]
- (c) Name any two types of family budget. [2]
- (d) Mention two reasons of price variation of a product in a market.\*\* [2]

\*\* Answer is not given due to change in the present syllabus.

- (e) State any two precautions followed while blueing clothes during the laundry process. [2]

### SECTION-B (60 Marks)

Attempt any **four** questions from this Section.

#### Question 5.

- (a) Mention the factors to be kept in mind while planning doors and windows for the kitchen. [5]
- (b) Discuss the importance of curtains in the home. [5]
- (c) What kind of light and colour should be applied in the bedroom?\*\* [5]

#### Question 6.

- (a) What are the factors affecting a family budget? [5]
- (b) List any five points to be remembered while writing a cheque.\*\* [5]
- (c) Briefly explain the concept of a recurring deposit.\*\* [5]

#### Question 7.

- (a) Describe how social development forms an integral part of a child's development. [5]
- (b) What role does negative and positive peer pressure play on an adolescent? [5]
- (c) State the factors affecting physical development in a child. [5]

#### Question 8.

- (a) What is the role of seasonal food and occasion in planning a meal for the family? [5]
- (b) Discuss the importance of appropriate nutrition during adolescence. [5]
- (c) List five ways by which time, energy and money can be saved during meal planning. [5]

#### Question 9.

Write short notes on:

- (a) Storage of non perishable food [5]
- (b) Effect of advertisements on consumers.\*\* [5]
- (c) Harmful effects of kesari dal.\*\* [5]

#### Question 10.

- (a) Discuss the method of washing a silk saree. [5]
- (b) Explain any five consumer rights. [5]
- (c) List any five procedures to be followed in the safe storage of food. [5]

## ANSWERS

## SECTION-A

## Answer 1.

- (a) Emotional development means the ability to control emotions and express them in ways acceptable to society. Emotional development involves learning what feelings and emotions are, understanding how and why they happen, recognizing one's own feelings and those of others, and developing effective ways of managing them.

## Answer 2.

- (b) Meal planning is the art and science of implementing the principles of nutrition in one's daily diet in an appetizing way by meticulous planning, food purchase, meal preparation and serving.
- (d) Rooms with low ceilings can appear larger if diagonal lines are used on curtains; as diagonal lines carry the eye from ceiling to the floor creating an impression of height. Also sometimes, curtains are hung from top to floor giving an impression of height.
- (e) The work triangle is used by designers to create efficient use of the kitchen.
- (i) Storage centre
  - (ii) Preparation and mixing centre
  - (iii) Cooking stove centre
- The three major units- refrigerator, sink and cooking stove should ideally be in a triangular arrangement to facilitate handling by the housewife. The work triangle among these three centres should not be less than 15 feet and more than 22 feet.

## Answer 3.

- (a) Budget acts as an intelligent guide to spending. It is a record of past expenditures, and estimation and planning of future expenditures and the distribution of current expenses on various items, over a certain period of time.
- (c) **Advantages of Physical exercise are:**
- (i) To keep the body fit.
  - (ii) In the growth and development.
  - (iii) Improves working efficiency of the body system.
  - (iv) Improves working efficiency of the various organs such as heart, lungs, etc.
  - (v) Reduces risk of cardiovascular disease.
  - (vi) Reduces risk for type 2 diabetes some cancers and metabolic syndrome.

(vii) Strengthens bones and muscles.

(viii) Improves mental health and mood.

(Any two)

- (d) Pulses and Legumes such as Bengalgram, blackgram green-gram, redgram, lentil (whole as well as dals), etc. provide us nutrients such as : Energy, protein, fat, vitamin B1, vitamin B2, folic acid, calcium, iron, fiber, etc.
- (e) Heating or cooking fruits and vegetables destroy some water soluble and heat sensitive nutrients. Consuming raw fruits and vegetables ensure maximum usage of minerals and vitamins. Raw foods are easy to digest and also provide roughage.

## Answer 4.

## (a) Factors causing food spoilage are :

- (i) Food spoilage is mainly due to the undesirable changes caused by micro-organisms, enzymes, insects etc.
- (ii) Light exposure could result in colour and Vitamin loss. Light may be responsible for the oxidation of fats.

## (b) Ways of Serving food hygienically are:

- (i) All food should be eaten as soon as it is cooked.
- (ii) Food should be served in dishes with covers.

## (c) Types of Family Budget are:

- (i) **Surplus Budget** : The family has extra money to save. Income is more than expenditure.
- (ii) **Balanced Budget** : Both ends meet, i.e., income and estimated expenditure are almost the same.
- (iii) **Deficit Budget** : Expenditure exceeds the income.

(Any two)

## (e) Precautions to be followed in the Bluing Process are:

- (i) Coloured fabrics should not be blued or else they get a bluish tinge all over.
- (ii) Fabrics should not be dipped in blue water that has been left standing for five minutes or more. If blue water is left undisturbed for some time, blue particles settle down at the bottom and the fabrics will get patches of blue colour.
- (iii) Fabrics should not be left standing in the blue water otherwise patches will appear.
- (iv) If patches of blue appear in the fabrics, they should be given a rinse in the vinegar water.
- (v) Blued fabrics should be dried in the sun for better results.

## SECTION-B

## Answer 5.

- (a) Doors in the kitchen are considered as necessary evils, because they take away space and ease of movement and working efficiency is decreased. So doors should be minimum and can be provided where no major work centre comes in between. Windows provide the kitchen with natural lighting and ventilation. Therefore, enough area should be provided for windows as much as possible. Minimum window area should be equal to at least 10 percent of the floor area. If possible, one counter should have ample daylight from the window and facilitate an outer view. An exhaust fan fitted over the kitchen window helps better ventilation to remove out hot air and odours.
- (b) **Importance of curtains in the home are:**
- (i) Curtains can be used for both practical and decorative purposes.
  - (ii) Curtains are used to insulate a room and to control light and glare.
  - (iii) Curtains complete a room's decor and also help in controlling the acoustics of a room by acting as a buffer against sound and noise.
  - (iv) Curtains can be used to filter or block out light.
  - (v) Windows of the same shape and size can be made to look larger or smaller by using curtains of a certain colour and pattern.

## Answer 6.

- (a) **Factors affecting a family budget are:**
- (i) **Availability of Money:** The expenditure of a family depends upon the availability of money or total income of the family, that is available to be spent on various needs. In the lower income group, family's expenditure is more on food. Higher income group families spend more on recreation, education, luxuries, etc.
  - (ii) **Composition of the Family:** The number of members in the family along with the earning members, affects the family budget.
  - (iii) **Family Life Cycle :** At which stage is the family at present i.e. whether beginning family, expanding family or contracting family.
  - (iv) **Occupation of the Family Members:** Sometimes expenditure of the family depends upon the occupation of the family members. In certain jobs, there are special benefits like free quarters, educational facilities for children, health and medical allowance, travelling allowance, etc.
  - (v) **The Needs and Objectives of the Family:** Expenditure will be done according to the needs

and objectives of the family. For example, a family where young children are there, more will be spent for nutritious foods. Old people require health and medical expenses. Working women spend money for the servants as they do not find time to do the household work.

(vi) **Economic Status:** The expenditure varies with the standard of living that the family has to maintain. The socio-economic status of the family is determined by its income, education level and occupation of the members. The higher the socio-economic status the expenditure will be more on interior decoration, higher education, club membership, accommodation, recreation, etc.

(vii) **Religious Ceremonies and Celebrations:** The amount incurred on observing and maintaining old traditional values, brings forth an additional expenditure to celebrate a number of ceremonies to be performed in the traditional form.

(viii) **Place of Stay:** If the family lives in a small town, rates are comparatively low, overall expenses on necessities are less and so the family can spend on luxury items. The distance of place of work from home also affects the family budget.

## Answer 7.

- (a) (i) "Social development refers to the ability of a child to behave in a manner acceptable to the society in which he/she lives."
- (ii) Social development involves learning the values, knowledge and skills that enable children to relate to others effectively and to contribute in positive ways to family, school and the community. This learning is primarily developed from home, school and neighbourhood.
- (iii) Social development helps to develop language skills, build self-esteem, strengthen learning skills, resolve conflicts and establish positive attitudes. From being self-centered, the child gradually starts growing more social as his horizons widen outside home. He learns to share his toys first and then, ideas and emotions. He learns to play games with set rules at first and then innovates his own rules. He makes more friends without much adult influence. He learns to share, co-operate while being in a group, build leadership qualities, take responsibilities and become sensitive towards others around him.
- (iv) He gains emotional security as his peers share similar thoughts, problems and ideas. He tries to please his friends and craves for peer approval. Older children recognize fear and learn coping mechanisms towards bullying.



(v) In school, children develop qualities for social development such as co-operation, helpfulness, taking responsibilities, sharing, respecting each other, etiquettes of behaving outside etc. They understand how the world outside functions. Thus, social development grooms them in a wide variety of areas.

- (b) (i) **Positive peer pressure:** Can boost a teen's self-identity, self-esteem and self-reliance. At its best, peer pressure can mobilize teen's energy, motivate them for success, and encourage them to conform to healthy behaviour. Peers also act as positive role models at times. Peers demonstrate appropriate social behaviours. Peers often listen to, accept, and understand the frustrations, challenges and concerns associated with being a teenager. They help each other in studies and emotional stress. In sports, positive peer pressure may enhance leadership qualities.

(ii) **Negative Peer Pressure:** The need for acceptance, approval, and belonging is vital during the teen years. Teens who feel isolated or rejected by their peers or in their family are more likely to engage in risky behaviours in order to fit in with a group. In such situations, peer pressure can fuel risk-taking behaviour, drawing a teen away from the family and positive influences and luring him into dangerous activities. Once influenced, teens may continue to slide into problems with the law, substance abuse, school problems, authority defiance, gang problems, etc.

- (c) **Factors affecting physical development in a child are:**

(i) Potentials like height, weight, body structure, etc., are largely dependent on heredity factors.

(ii) Healthy and nutritious food, comfortable clothing and a home that offers safety and protection.

(iii) The protection provided by adult members enables the child to stand on his feet and to interact with family members.

(iv) A healthy environment is very necessary. Good and healthy habits are very important for physical growth. Taking a bath everyday and cleaning the nose, ears, nails and skin are very important. Play and exercise also play an important role. Immunization schedule should be followed.

(v) In the beginning, development of bones and muscles is better in girls but by the end of childhood, boys also grow and are ahead of girls. So the sex difference also plays a role in physical development.

#### Answer 8.

- (a) **Role of seasonal food in planning meal for the family:**

Seasonal foods are cheaper and have better nutritive value because of improved methods of food preservation and distribution, even the most perishable foods are available all over the country nowadays. Elaborate meals are not always the most nutritious meals.

#### **Role of occasion in planning meal for the family:**

On occasions such as birthdays, anniversaries, marriages or family gatherings a variety of meals can be planned keeping in mind the texture, appearance and taste of meals. In some Religion Traditions and Customs, Muslim cannot eat pork and Hindus do not consume beef. Customs and traditions differ from community to community.

- (b) The period of adolescence is one of considerable stress in terms of physical growth, hormonal changes and emotional strain. Adolescents' caloric needs vary depending on their growth rate, degree of physical maturation, body composition and activity level.

Although the adolescent may look of the same physique as an adult, his nutritional requirements are much higher due to his activity levels and growth spurts. To ensure sufficient supply of protein, calcium and iron-milk, egg, whole grain cereals and green leafy vegetables should be included in their diet.

Adolescents indulge in many eating disorders such as anorexia or bulimia. They also eat a lot of junk food. This is not good for their body in the long term.

Large amounts of magnesium, zinc, iodine, vitamin A, B, C, D, E and K are required for their accelerated growth, increased energy needs for metabolism and muscle tissue development, etc. While iron is essential for body tissues, calcium is needed for development of skeleton, teeth and other physiological functions. Vitamin D for longer bones and vitamin B for energy.

- (c) **Ways through which time, energy and money can be saved during meal planning are:**

(i) Plan the meal for several days or at least for a week. (To save time and energy).

(ii) Make an accurate shopping list, including quantities and quality of goods you need, also check supplies in stock.

(iii) Purchase from market after comparing prices (Best available purchase information). Seasonal foods are cheaper and have immediate nutritional value.



(iv) Choose food items from each food group which has low cost but the same nutritive value. For example, pulses can be a substitute for meat. Similarly Guava and Amla are more nutritious than Apple or Orange.

(v) Avoid wastage of food whether it is raw or cooked. It adversely affects the economy.

(vi) Appropriate preparation techniques and adequate storage facilities should be used, so that there can be economy of energy and time.

(vii) Avoid 'Impulsive Buying'.

(viii) Meals cooked at home are cheaper, healthier and better than those bought from the market.

(ix) If possible, grow fruits and vegetables in your kitchen garden. (Any five)

#### Answer 9.

(a) (i) Food should be carefully cleaned i.e., it should be free from gravel, husk and other foreign matter etc., and dried thoroughly in the sun before storage.

(ii) Storage of foods should be done in clean containers with tightfitting lids. Containers can be made of tin, aluminum, plastic or glass. Clay pots or gunny bags may also be used in case of large quantities.

(iii) A dry, cool and dark area should be chosen for storage of non-perishable foods.

(iv) There are several home remedies to preserve cereals and pulses. For e.g., wheat is mixed with dry neem leaves to prevent it from the attack of insects. Similarly, lumps of salt and turmeric can be used for storing rice.

(v) Pickles should be levelled well with a big spoon or spatula before packing.

(vi) Sugar and salt are hygroscopic in nature, which means when exposed to air; they naturally absorb moisture from the air. Therefore, sugars and the food items that are rich in sugar should be stored in dry places and in airtight containers because they become sticky when exposed to moisture.

#### Answer 10.

(a) A silk saree is a protein fibre, which is strong but does not have good abrasion resistance. It is very elastic and has a natural shine. Kneading and squeezing method is therefore suitable for washing and stiffening with gum water restores its original shine.

(i) **Preparation:** Examine the saree for tears, holes, stains and any foreign particles and give suitable treatment accordingly.

(ii) **Steeping:** Steeping is avoided due to its weak strength when wet. Though silk is even stronger than cotton in dry state, it is very weak when wet. If the garments are heavily soiled, steeping can be done in lukewarm or cold water for a short time, about 10–15 minutes. Only neutral soaps should be used for washing silk saree.

(iii) **Washing:** The silk saree should be washed with gentle technique, using kneading and squeezing method. In much soiled areas like neckline, elbows, cuffs etc., a gentle rubbing with a flat hand can also be done.

(iv) **Rinsing:** Extra soap water should be removed by gentle squeezing. Rinsing should be done in clear, soft tap water till all the soap is removed from the saree. Last rinse is given to silk by adding vinegar to the rinsing water for increasing lustre.

(v) **Stiffening:** Since silk is very soft and pliable fibre, it requires a treatment of gum water to give it stiffness, proper shape, body and shine.

(vi) **Drying:** Coloured silk sarees should be dried in shade and white silk saree in sunlight. The silk saree should be properly ironed before they are completely dry.

(vii) **Ironing:** Ironing temperature of silk is 100°F. If the silk fabrics are completely dry or if they are to be ironed after some time, they should be rolled up in a moistened towel so that they remain uniformly moist. Silk saree should not be sprinkled with water when ironing because it leaves stains on the fabric.

(c) The main enemies of food in a kitchen are rats, flies, cockroaches, weevils and dirt. In kitchen, adequate storage facilities should be present so that all dry and wet ingredients can be labelled and stored properly. All places of storage should be kept dry and clean. They should be inspected regularly and some chemicals like gammexane or DDT should be spread under the under lays of paper/plastic sheeting. Dry foods should be stored in clean dry containers. Bins should be covered with tight lids. They should be exposed to sunlight regularly to kill bacteria and remove moisture. Perishable foods should be kept in ice boxes or refrigerators. They should be washed well and dried, before being stored, to remove dirt and bacteria. Regular cleaning of storage spaces is essential.



## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions from this Section

#### Question 1.

- (a) What is the difference between related and contrasting colour schemes? **\*\*** [2]
- (b) State the utility of local lighting. **\*\*** [2]
- (c) Mention two sources of light commonly used in the house. **\*\*** [2]
- (d) What kind of materials should be used for kitchen counters? [2]
- (e) What is meant by 'crossing a cheque'? **\*\*** [2]

#### Question 2.

- (a) State any two differences between growth and development. [2]
- (b) Define 'cognitive development'. [2]
- (c) Name the male and female sex hormones secreted during adolescence. **\*\*** [2]
- (d) What do we mean by 'binge eating disorder'? [2]
- (e) State any two characteristics of a balanced diet. [2]

#### Question 3.

- (a) Explain the term 'shelf life' of food products. [2]
- (b) Name the sweat glands present in the human body. **\*\*** [2]
- (c) State the difference between perishable and non-perishable food. [2]
- (d) Why should cotton clothes be starched? [2]
- (e) Define Optical brighteners. [2]

#### Question 4. **\*\***

- (a) Define the term 'Food adulteration'. [2]
- (b) State two advantages of consumer education. [2]
- (c) State any two primary functions of a bank. [2]
- (d) What do you mean by a current account? [2]
- (e) Name any two standardization marks. [2]

### SECTION-B (60 Marks)

Attempt any **four** questions from this Section.

#### Question 5.

Interior decoration expresses the personality of a home maker.

In this context, discuss the following:

**\*\*** Answer is not given due to change in the present syllabus.

- (a) Five types of kitchens. [5]
- (b) Light and colour used in decorating a living room. [5]
- (c) Factors affecting the selection of carpets for a room. [5]

#### Question 6.

'Budgeting helps in efficient management of money'. In this context explain:

- (a) Steps in making a budget. [5]
- (b) Importance of a savings account. **\*\*** [5]
- (c) Operating a savings bank account. **\*\*** [5]

#### Question 7. **\*\***

'Changes occurring during adolescent years are dramatic'. In this context discuss:

- (a) The pubertal changes seen during adolescence. [5]
- (b) Impact of early maturation in girls. [5]
- (c) Emotional concerns of the adolescent. [5]

#### Question 8.

'Meal planning helps to achieve nutritional adequacy.' In this context explain:

- (a) Classification of fruits and vegetables into their sub groups and their nutritional contribution. [5]
- (b) Importance of a balanced diet. [5]
- (c) Advantages and disadvantages of using convenient foods. [5]

#### Question 9.

'Proper information about purchase, storage and preservation of food is essential.' In this context discuss:

- (a) Storage of milk to maintain its quality. [5]
- (b) Use of salt in food preservation. [5]
- (c) Need for consumer education to make wise purchases. **\*\*** [5]

#### Question 10.

Explain the following:

- (a) Steps and precautions involved in the household method of laundering coloured cotton. [5]
- (b) Importance of labels on a packed product. **\*\*** [5]
- (c) Fixed Deposit Account and its features. **\*\*** [5]

## ANSWERS

## SECTION-A

## Answer 1.

- (d) Materials to be used for kitchen counters should be resistant to acid stains, be able to withstand heat and at the same time is easy to clean and maintain.

## Answer 2.

| (a) | Growth                              | Development                                                               |
|-----|-------------------------------------|---------------------------------------------------------------------------|
|     | 1. Growth is external in nature.    | Development is internal.                                                  |
|     | 2. Growth stops after sometime.     | Development is continuous.                                                |
|     | 3. Growth can be directly measured. | Development is indirectly measured by drawing inferencessay intelligence. |
|     | 4. It refers to maturity.           | It refers to learning.                                                    |
|     | 5. It is related to heredity.       | It is related to environment.                                             |
|     | 6. It is a quantitative change.     | It is a qualitative change.                                               |

- (b) Cognitive development refers to the ability of the child to think and find solution to problems. Developing skills such as problem solving, reasoning, creating, conceptualising, categorising, remembering, planning, and so on are recognised as cognitive development.
- (d) Binge Eating Disorder or Obesity is characterised by compulsive overeating in which people consume huge amounts of food while feeling out of control and powerless to stop. Binge eaters often eat even when they are not hungry and continue eating for long even after they are full.
- (e) (i) It helps in controlling body weight, heart rate and BP.  
 (ii) Increases one's capacity to exercise and muscle performance.  
 (iii) Improves blood sugar, lowers harmful cholesterol and triglycerides and increases the beneficial HDL cholesterol.  
 (iv) Produces mental and physical relaxation.  
 (v) Helps to build the immunity of body.

## Answer 3.

- (a) Every foodstuff has a shelf life which means it starts deteriorating or spoiling after a certain period of time due to the chemical and biological changes happening in it. Environmental factors like temperature, humidity, attack of bacteria or micro-organisms also affect the shelf life.

- (c) (i) **Perishable Foods** : They can be kept at room temperature for only few hours or 1 or 2 days before spoiling. For example, milk and milk products, meat, fish, poultry, fruits, leafy vegetables and cooked food. These foods keep well under refrigeration.

(ii) **Non-perishable Foods** : They can be kept for months or years without spoiling unless handled and stored carelessly. Examples of such foods are all preserved food products (canned, dried, pickled, etc.), whole cereal, pulse and millet grains, oil seeds, fats and oils, honey, sugar, jaggery, salt, some spices and essence.

- (d) Starching gives crispness and shape to the cotton fabric hence restoring its original finish.
- (e) Optical brightening agents are colourless dyes which attach themselves to the fabric and make them appear whiter or brighter by reflecting light.

## SECTION-B

## Answer 5.

- (a) The types of kitchen are :

(i) **Pullman or Strip Kitchen** : It is found in small houses in which there is little space for a kitchen. The strip kitchen is one wall with the components placed in a row fashion so there is more movement from one end to the other for food preparation. No work triangle really exists in this kind of a kitchen but it can be made most efficient by planning the sink center between the fridge and cooking center.

(ii) **Corridor Kitchen or Two Wall Kitchen or Galley Kitchen** : The work platforms are placed parallel to each other on opposite walls. Its disadvantage is that it often acts as a passage for family members on their way from one part of the house to another; and this traffic interferes with meal preparation. The distance between the two parallel counters should be approximately 4 feet. Ideally the sink and cooking center should be on one side and the fridge on the opposite side.

(iii) **U-Shaped Kitchen** : It is the best of the kitchen plans in terms of efficiency of work triangle. Three work centers on three adjacent walls provide a great deal of continuous counter space for work. It is comfortable for more than one person to work at one time. The two corner cabinets present a minor storage challenge that is easily corrected with sturdy swing out shelves.

(iv) **L-Shaped Kitchen** : This can also be regarded as a good type. It leaves two walls empty for



windows and doors and the free corner can be utilised for keeping built-in storage or dining area. Three work centers right to left are placed on two adjacent walls. A carousel fitting can be used for the corner storage of the cabinets below the counter.

**(v) Broken U-Shaped Kitchen :** It is similar to the U-shaped kitchen but its continuity is broken. One arm of the 'U' forms a pass through counter (which can also be used for having meals).

**(vi) Island Shaped Kitchen :** Essentially, the island layout is an extended version of the L-shaped or U-shaped kitchen with an additional work area in the middle. It needs a fairly large room. The top of the island can be used to include a hob or a sink or it can purely serve as an extra work surface probably acting as a breakfast bar.

Most islands are made of a standard height of 900 mm and they are 1200 x 1200 in size. The smallest size of the island however being 600 mm x 900 mm. The island could have a curved or irregular shape too, depending on the space available.

- (b)** A living room should have a combination of general and local lighting. Yellow indirect light provides for a warm ambient space and a comfortable level of illumination for moving around the house, watching television and other general activities. White direct or indirect light also can be used instead. Task lights may be used for specific activities like reading, playing games, dining, etc. Accent lighting may be provided on a textured walls or a picture frame or over an art piece.

The colours in a living room should give a comfortable feeling in order to create a welcoming atmosphere and one of ease for visitors as well as for members of the family. Living room is an essential part of a house as it represents the family that lives in it. Sophisticated colours are often toned down or greyed so that they look neutral.

- (c) Factors affecting the selection of carpets for a room are :**

**(i) Size of Carpet :** Carpets are made in strips, squares and broadloom widths. A narrow width of carpet is known as body-width or strips. Carpets which are wider than body width are known as broadloom.

**(ii) Colour :** Colour should be in accordance with the furnishings used. A large room can have a dark-colour carpet. In a small room, the colour of the carpet should blend with the colour of the wall, showing continuity and wider space.

**(iii) Plain or Patterned :** Plain carpets go well with patterned upholstery material. Oriental carpets look good in formal rooms.

**(iv) Care Needed :** While choosing a carpet, one should look for how much care and maintenance do they require.

**(v) Durability :** Wool is considered to be the best kind of fibre for carpets because it is durable and colour-fast. Cotton rugs are soft and crushable. They sal easily and are not colour-fast. They are usually durable. Important factor for durability is closeness of pile.

**(vi) Stains :** Carpets with a shiny surface show crushed marks more easily. Dark shades show lint. So medium shades are more practical.

**(vii) Cost :** For low budget plan, felt jute coir or cotton rugs or even chatais are a good choice. Carpets should always be bought from reliable stores or dealers.

**(viii) Impressions :** High pile on carpet looks good but gets crushed more easily than short pile.

#### Answer 6.

- (a) The steps in making a budget are :**

**(i)** List commodities and services required by family members throughout the proposed budget period. The items have to be grouped together properly; the related terms are to be given under major headings, so that the needs of all the family members are taken into consideration. E.g. food, housing, clothing, medical allowance, etc.

**(ii)** Estimate the cost of desired items. For this, investigations have to be made and records kept. Under changing circumstances, new demands upon money occur and the effects of these changes must be carefully estimated and calculated. Market trends must be considered.

**(iii)** Estimate total expected income. All sources of income have to be recognised. Care should be taken to include all sources such as salary or wages, profits, professional fees, bonuses and gifts, and other earnings. The income from different sources has to be listed under assured and possible incomes.

**(iv)** Bring expected income and expenditures into balance. Balancing income and expenditure and keeping aside some saving is necessary. The necessary items and desired goods should be separately listed. If the budget does not balance then either the sources of income have to be increased or the expenditures have to be cut down.



(v) Check plans to see that they have a reasonable chance of success and possibilities of savings for future by answering questions like whether the needs of the family have been met, have emergencies been foreseen, is there solvency, does it meet long-term goals, etc.

#### Answer 8.

- (a) Fruit and fruit juices provide water, sugars, vitamins (such as vitamin C) and carotene, minerals (such as potassium and selenium) and fiber. Juices only provide vitamins and minerals and lack most of the fiber contained in whole fruits, therefore it is always better to eat whole fruits. Dried fruits (prunes, chestnuts, raisins, dates) are characterised by their lower water content. It is important that we eat fruit that is high in vitamin C on a daily basis (citrus fruits, kiwis, strawberries, etc.) Also seasonal fruits like mango, strawberry and guava provide immediate nutritional value.

Green vegetables and other vegetables are an important source of vitamins (A, E and C) minerals, carotenoids, folic acid, fibre and antioxidants, and it is therefore recommended that they be eaten on a daily basis. Kids should eat a variety of vegetables from each of the five sub groups :

- (i) Dark green vegetables
- (ii) Orange vegetables
- (iii) Dry beans and peas
- (iv) Starchy vegetables
- (v) Other vegetables

- (b) A healthy diet is one that helps maintain or improve general health. It is important for lowering many chronic health risks such as obesity, heart diseases, diabetes, hypertension and cancer.

A good healthy diet consisting of all the macro-nutrients (proteins, carbohydrates, fats) and micronutrients (vitamins, minerals, water and fibre) not only helps in growth and maintenance of our body, but also boosts immunity.

Nutrients obtained from different foods are required in certain proportions by our body and this varies from person to person according to his age, gender and occupation or working lifestyle, physical stress and illness. For e.g. an adolescent's nutrient requirement is much more than a school going child, a carpenter who does hard work requires much more of protein and other nutrients compared to an office going person who has a rather sedentary lifestyle.

A balanced diet not only meets a person's day to day nutrient requirement but also helps the body store some extra nutrients by which the body is able to withstand weakness for a short duration

It helps in controlling body weight, heart rate and blood pressure. Increase in exercise capacity and muscle performance, improves blood sugar, lowers harmful cholesterol and triglycerides and increases the beneficial HDL cholesterol, produces mental and physical relaxation and helps build immunity.

- (c) Convenience foods may be semi processed and then stored. This increases their shelf life and ease of preparation. They are the products in which the significant portion of the preparation has been transferred from the kitchen to the processing plant. Examples include shelled frozen peas, jams, jellies, canned soups, pickles, juices etc. Most convenience foods in the market today are laden with saturated fats, sodium and sugar and provide little to no nutritional value. Therefore, these ready prepared convenience foods should be consumed as infrequently as possible because these foods are heavily processed and have lost much of their nutritional value.

#### Answer 9.

- (a) (i) Milk in boiled form can be kept covered with a perforated lid or wire mesh at room temperature for 6 to 12 hours during winters.  
 (ii) If milk is stored outside, it should be boiled every 5-6 hours.  
 (iii) Inside a refrigerator milk can last 3 to 4 days or even more in closed container. Never store more than a week.  
 (iv) Never mix old and new milk, cream or curd as it spoils faster due to increased bacterial count.  
 (v) Covering and capping the milk containers protect the milk from dust, bacteria and undesirable flavours and odours.  
 (vi) Milk should not be exposed to sunlight because of the losses of ascorbic acid and riboflavin.
- (b) Salt is a traditionally used household method of food preservation.  
 (i) Salt absorbs excessive moisture from any foodstuff and helps increase shelf life since bacteria cannot grow in the absence of water.  
 (ii) Salt has preservative properties and kills microbes.  
 (iii) It prevents growth of moulds.  
 (iv) It is used to preserve pickles, jams, jellies, beef, etc.

**Answer 10.**

- (a) Cotton is a strong fabric. Coloured cotton fabrics should be washed only in cold water to avoid bleeding of colour and they should be never bleached or blued. The following are the steps to launder a coloured cotton garment :

**(i) Preparation :** Examine the garments for tears, holes, stains or foreign particles.

**(ii) Steeping :** For coloured garments, soaking should preferably be avoided. If required, they should be soaked in tap water for not more than fifteen minutes to half an hour. Colourfast and non-colourfast garments should be separated before soaking.

**(iii) Washing :** Cotton garments are strong fabrics and become more stronger when wet. When they are heavily soiled, they are washed with scrubbing on board. Friction or rubbing or scrubbing method cleans them conveniently and quickly.

**(iv) Rinsing :** Rinsing two or three times in clean, tap water is very important. This is done by dousing each garment up and down separately many times till we get soapless water in the last rinsing. Bleeding of colour in cotton and linen is prevented by boiling them in salt water.

**(v) Starching and Bluing :** Coloured fabrics can be starched with liquid starch but never be blued.

**(vi) Drying :** Coloured clothes should be turned inside out before drying in sun otherwise their colour will soon fade. Salwar and pajamas are spread full width. Shirts and kurtas should be dried on hangers. Sarees and bed sheets should be hung after straightening their edges. Trousers too are hung folded on the clothes line for drying.

**(vii) Ironing :** Cotton fabrics should be ironed when damp. If they become fully dry, water will have to be sprinkled on them to moisten and get good results of ironing. For starched clothes, it is preferable to iron them when still damp. Ironing temperature for cotton is 400°F.



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## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions from this Section.

#### Question 1.

- (a) Define a colour wheel.\*\* [2]
- (b) State any two ways of taking care of carpets. [2]
- (c) Why is Ecotone so popular these days ?\*\* [2]
- (d) List two factors that influence the size of the kitchen. [2]

- (e) Name any two types of family budget. [2]

#### Question 2.

- (a) State any two objectives of savings. [2]
- (b) What do you mean by endorsement of a cheque ?\*\* [2]
- (c) Give the full form of ATM and PIN.\*\* [2]
- (d) What are endocrine glands ?\*\* [2]
- (e) State any two factors affecting the physical development of a child. [2]

#### Question 3.

- (a) What do you mean by a food group ? [2]
- (b) Name any two adolescent eating disorders.\*\* [2]
- (c) List any two factors as to why breakfast is considered the most important meal of the day. [2]
- (d) Why should ripe bananas not be stored in the refrigerator ? [2]
- (e) State any two factors causing food spoilage. [2]

#### Question 4.

- (a) Suggest any two points to be considered while storing clothes. [2]
- (b) Name the method of washing rayon fabrics. [2]
- (c) What is a standardization mark ?\*\* [2]
- (d) List any two conditions when food is considered to be adulterated.\*\* [2]
- (e) Define the term consumer.\*\* [2]

### SECTION-B (60 Marks)

Attempt any **four** questions from this Section.

#### Question 5.

Home furnishing requires aesthetic taste and knowledge.

In this context discuss the following :

- (a) Three dimensions of colour.\*\* [5]

\*\* Answer is not given due to change in the present syllabus.

- (b) Factors affecting the selection of curtains and draperies. [5]

- (c) Important features and characteristics of flooring in a kitchen. [5]

#### Question 6.

"Budgeting is an art of planning income so that some money is left aside for saving." In this context, explain :

- (a) Five advantages of making a budget. [5]
- (b) The utility of a passbook and paying-in-slip book in the operation of a bank account.\*\* [5]
- (c) How does a recurring account help common people to save money ?\*\* [5]

#### Question 7.\*\*

Adolescence is a crucial stage in every individual's life.

In this context explain :

- (a) Measures to be adopted to prevent body odour. [5]
- (b) Importance of exercise in an adolescent's life. [5]
- (c) The role of parents in helping an adolescent to deal with emotional problems. [5]

#### Question 8.

Laundering is a combination of cleaning and finishing. In this context explain :

- (a) How do you wash a school woollen cardigan ? [5]
- (b) The importance of starches and blueing agents in laundry. [5]
- (c) Detergents are better than soaps in laundry work. [5]

#### Question 9.

Meal planning is both an art and science.

In this context explain :

- (a) Five factors affecting meal planning. [5]
- (b) The need for adequate nutrition by the elderly. [5]
- (c) Importance of food preservation. [5]

#### Question 10.\*\*

Consumer education helps a consumer in making sensible purchases. In this context explain :

- (a) The objectives of consumer education. [5]
- (b) Health hazards due to the consumption of argemone seeds. [5]
- (c) Wise buying techniques made by the consumer. [5]

## ANSWERS

## SECTION-A

## Answer 1.

## (b) The two ways of taking care of carpets are :

(i) New carpets shed fluff for a few weeks. So they should be lightly cleaned in the initial stages of use.

(ii) After some time of usage, clean them with a brush. Brushing should always be done on one side and the pile should be stroked on the other side so that the dirt is easily removed.

## (d) The size of the kitchen is dependent upon the following factors :

(i) The available space in the house plan.

(ii) The number of persons for whom the food is to be cooked.

## (e) Types of family budget are as follows :

(i) **Surplus budget** : The family has extra to save. Income is more than expenditure.

(ii) **Balanced budget** : Both ends meet, i.e., income and estimated expenditure are almost the same.

## Answer 2.

## (a) The two objectives of savings are as follows :

(i) It reduces economic insecurity, especially in old age after retirement.

(ii) Helps during the period of physical inability and illness.

## (e) Factors affecting the physical development of a child are :

(i) Healthy and nutritive food, comfortable clothing and a home that offers safety and protection.

(ii) A healthy environment is very necessary. Good and healthy habits are very important for the physical growth. Taking bath every day and cleaning of nose, ears, nails, skin is very important. Playing games and exercise also plays an important role. Immunisation schedule should be followed strictly.

## Answer 3.

(a) A food group is a collection of foods that share similar nutritional properties of biological classifications. For e.g., cereals and pulses, fruits and vegetables, milk and meat products, etc.

(c) Two factors as of why breakfast is considered the most important meal of the day are :

(i) A basic breakfast must be adequate to provide one-fourth of the daily calorie and protein requirement; for maintaining better efficiency in the late morning hours.

(ii) Omission of breakfast decreases physiological efficiency in the late morning hours and has no major effect on weight reduction.

(d) Ripe bananas should not be stored at low temperature because they become black when they are later brought to room temperature. They should be looked over occasionally, and those which show signs of spoiling should be removed.

(e) Refer to ICSE Paper, 2020 Answer 4(a)

## Answer 4.

## (a) Measures to be considered while storing clothes are :

(i) Clothes that are to be stored, must be fully dry. Moisture left in clothes will promote moths and mildew. Just before storing, clothes should be exposed to strong sun rays.

(ii) Some protective materials should be used to repel insects, e.g., newspapers, dry neem leaves or naphthalene balls.

(b) Mild soap can be used on rayon fabrics. Always use kneading and squeezing method for washing these fabrics. The dirty spots and stains should be cleaned with gentle rubbing by flat hand.

## SECTION-B

## Answer 5.

## (b) Factors affecting the selection of curtains and draperies are :

(i) Rooms with low ceilings give an appearance of height if diagonal lines are used on curtains, as diagonal lines carry the eye from the ceiling to the floor creating an impression of height.

(ii) Plain curtains should be used in rooms that have more pattern in them. They can also be chosen for rooms that contain too many pictures and have a lot of pattern in furniture.

(iii) To help in developing an impression of space in a small room, plain curtains can be used with plain walls, so as to give a sense of continuity and spaciousness.

(iv) While choosing curtains with patterns, the size of a room, general colour of the furniture and the look expressed by it are the main points to be taken into consideration. Small designs are



suitable for small rooms with light-weight pieces of furniture.

(v) If there are too many windows in a room, the pattern of curtains should be less striking. The way out is to use a single curtain over a group of windows on the same wall.

- (c) Floors should be made up of such materials and finishes which are easy to clean and maintain. The floor surface should be smooth and maintainable with minimum effort but it should not be too smooth, otherwise it becomes slippery and dangerous. To stop the floor from being slippery, adequate friction should be provided for safety. Rubber tile is beautiful, resilient and keeps its finish well. If possible, splash boards should be installed a few inches up above the floor to help in preventing cleaning problems. Some other varieties in floor covering are also available specifically for the kitchen.

#### Answer 6.

- (a) **Advantages of making a budget are :**

- (i) Budget acts as an intelligent guide to spending.
- (ii) A rational budget can help you steer clear of debt.
- (iii) It enables the family to have an overall view of their income.
- (iv) Budgeting ensures that your spending is not greater than your income.
- (v) It assists you to get ready for contingencies or unforeseen costs that might push you towards financial adversities.

#### Answer 8.

- (a) **The following are the steps to wash a school woollen cardigan :**

(i) **Preparation :** Examine it for tears, holes, stains or foreign particles and treat accordingly. Tracing their outline on a brown paper is essential before they are washed. Wool has high elasticity which further increases when it is wet. So the knitted woollen fabrics invariably lose their shape. The tracing helps to restore the cloth to its original shape.

(ii) **Steeping :** Steeping of woollens is generally avoided because wool is a weak and elastic fabric. If not required, they should not be soaked for more than 5–10 minutes in cold water.

(iii) **Washing :** Wool being an extremely weak fibre, is susceptible to abrasion. It must be washed with a very gentle hand and with tender kneading and squeezing method, otherwise its fibres will

break. Only neutral soaps or reetha should be used to wash woollens.

(iv) **Rinsing :** Extra soap is gently squeezed out from the woollen fabric by pressing it between flat palms and is then rinsed off several times with a lot of water. Vinegar can be added in the last rinse to avoid fading of colours.

(v) **Drying :** Remove excess water by rolling tightly in a towel. Then spread the cardigan flat on marked outline to retain its original shape and let it dry in shade. Never wring or hang the fabric as the cardigan may get deformed.

(vi) **Pressing :** It should not be ironed but can be pressed at 100°F.

- (b) (i) Starch makes the fabrics appear smoother.
- (ii) Smooth surface of the fabrics does not allow dirt particles to stick to them easily.
- (iii) Smooth surface of the fabrics also makes them appear shining.
- (iv) Starch gives crispness to the fabrics.
- (v) Blues help restore the whiteness of white cellulosic fibres, by complimenting the yellow tinge of the fabrics that happens due to use and age.
- (c) **Detergents are better than soaps in the following aspects :**
  - (i) They are readily soluble even in cold water.
  - (ii) They have lower surface tension. Therefore, they have more efficiency than soaps.
  - (iii) They are easy to rinse out.
  - (iv) They are efficient even in hard water, unlike soaps.
  - (v) Detergents do not combine with the salts of the water to form deposits on the fabric.

#### Answer 9.

- (a) **Factors affecting meal planning are as follows :**

(i) **Whole day as a unit :** While planning, use the whole day as a unit to avoid repetitions of the same food.

(ii) **Nutritional need :** A family may comprise of adults, children, adolescents and old people. The diet should be such that it caters to individual nutritional needs.

(iii) **Sources of nutrients :** Knowledge of different sources of food nutrients is very important. (Examples : protein, carbohydrates, vitamins)

(iv) A judicious selection from the food group will supply adequate nutrients. Foods from every food group should be included.

(v) **Food budget of the family** : The money available will decide what will be purchased for the family. When the budget available per day is low, it is necessary to have a good knowledge of less expensive foods which have high nutritive value.

(b) **The need for adequate nutrition by the elderly are :**

(i) Intake of energy rich foods like sweets, fried or high-fat foods, cereals and starches needs to be reduced while liberal amounts of milk and milk products, fresh fruits, vegetables particularly green leafy vegetables, should be included to meet the vitamin and mineral needs.

(ii) An adequate intake of calcium, in particular, should be ensured to compensate for its losses due to gradual demineralisation of bones associated with aging.

(iii) Since sufficient exposure to sunlight is essential to meet the body's needs for vitamin D, in case of elderly individuals confined to bed, supplements of this vitamin needs to be provided.

(iv) Food rich in fats, especially saturated fats, should be avoided and instead, oils containing high levels of polyunsaturated fatty acids, such as sunflower oils, soyabean oil etc., should be used to prevent and control the condition of hypertension and other cardiovascular diseases.

(v) Intake of simple sugars should be reduced as these provide only empty calories.

(c) Food preservation helps prevent spoilage of food and increase its shelf life.

(i) Food items are fresh, cheap and available in abundance during their seasons.

(ii) If these are not properly preserved for off season consumption, they will be wasted.

(iii) Since the entire quantity of many food items cannot be consumed or utilised during the season itself, Thus, preservation of many items prevents wastage.

(iv) Food preservation also helps in making food available during off season and adding the variety in daily meals.

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## QUESTIONS

### SECTION-A (40 Marks)

Attempt *all* questions from this Section

#### Question 1.

- (a) Define a complementary colour scheme.\*\* [2]
- (b) Name any two neutral colours.\*\* [2]
- (c) State any two advantages of a well-planned kitchen. [2]
- (d) What is the purpose of general lighting in a home ? [2]
- (e) Classify family income into two categories.\*\* [2]

#### Question 2.

- (a) State two advantages of saving money in a bank.\*\* [2]
- (b) State two uses of an ATM machine.\*\* [2]
- (c) Define 'language development'. [2]
- (d) Write about any two common emotional patterns seen during childhood. [2]
- (e) Define the term investment.\*\* [2]

#### Question 3.

- (a) State any two characteristics of a balanced diet. [2]
- (b) Mention the importance of 'dietary fiber' for the elderly. [2]
- (c) What are the changes in food due to freezing ? [2]
- (d) Name any two common skin problems seen during adolescence.\*\* [2]
- (e) State any two common causes of family conflict during adolescence.\*\* [2]

#### Question 4.

- (a) What are the uses of optical brighteners in laundry ? [2]
- (b) Mention any two reasons for boiling cotton clothes during laundry. [2]
- (c) State any two unfair practices carried out by traders in the market.\*\* [2]
- (d) Write about any two important consumer rights.\*\* [2]
- (e) Mention the adulterants used to contaminate the following :\*\*
  - (i) Mustard oil
  - (ii) Bengal gram [2]

\*\* Answer is not given due to change in the present syllabus.

### SECTION-B (60 Marks)

Attempt any *four* questions from this Section

#### Question 5.

"Interior decoration expresses the personality of the home maker."  
In this context discuss the following :

- (a) Five work centers of a kitchen. [5]
- (b) Causes of glare from a light source.\*\* [5]
- (c) Factors affecting the selection of carpets for a room. [5]

#### Question 6.

"Budgeting is the first step in money management." In this context explain the following :

- (a) Factors affecting family budget. [5]
- (b) Reasons for saving. [5]
- (c) Precautions while writing a cheque.\*\* [5]

#### Question 7.

- (a) What are the factors affecting the physical development of a child ? [5]
- (b) State the changes seen in social behaviour of a child between the ages of 5-12 years. [5]
- (c) What are the effects of sex hormones during puberty?\*\* [5]

#### Question 8.

- (a) Discuss the method of storage of semi-perishable foods. [5]
- (b) Briefly describe any five principles of meal planning. [5]
- (c) Explain the procedure for preserving foods by the use of chemical preservatives. [5]

#### Question 9.

Explain the :

- (a) steps in laundering a polyester garment. [5]
- (b) importance of ironing as a method of restoring freshness to a garment. [5]
- (c) properties of a good laundry soap. [5]

#### Question 10.\*\*

- (a) What are the advantages of consumer education ? [5]
- (b) Define consumer aids. How does consumer aid help in wise buying ? [5]
- (c) Describe the ill effects of toxic colours used in foods. [5]

## ANSWERS

## SECTION-A

## Answer 1.

- (c) **Two advantages of a well-planned kitchen :**
- (i) Well planned kitchens always have smart storage and ensures that everything that an individual needs on a daily basis is within easy reach.
  - (ii) It provides a comfortable working space with minimum unpleasant disturbances.
- (e) The two categories for classifying family income are: assured or fixed income and possible income.

## Answer 2.

- (c) Language development means the ability of children to communicate through the use of meaningful words and sentences during early childhood.
- (d) The common pleasant emotions seen during childhood are affection curiosity, joy, pleasure, delight and happiness and the common unpleasant emotions are fear, shyness, embarrassment, worry, anxiety, anger, jealousy and grief. Children's emotions differ from those of adults in their intensity and frequency. Also they are transitory in nature.

## Answer 3.

- (a) **Characteristics of a Balance diet :**
- (i) A balanced diet provides enough calories to perform the metabolic processes of human body. It contains fats, oils and sweets in moderation because they tend to impair the metabolic process and cause various diseases.
  - (ii) A balanced diet also provide adequate. Quantities of minerals, proteins, vitamins and carbohydrates to perform the regulatory functions of the body.
- (b) Adequate amount of food rich in dietary fibre in the diet of an elderly has a beneficial effect in various conditions associated with ageing such as constipation, diabetes and cardiovascular diseases.
- (c) Freezing slows down microbial growth and enzyme action thus, preserving food for longer. However, it also causes formation of ice crystals within food tissues. Vegetables like spinach, tomato, celery and cucumber which have high water content lose their texture and become limp and soggy when thawed.

## Answer 4.

- (a) Optical brighteners are colourless dyes which make the fabric appear whiter or brighter by reflecting light. As there is no chemical reaction

so it does not have any harmful effect on the fabric.

- (b) Cotton clothes are boiled to disinfect them and to whiten and freshen them.

## SECTION-B

## Answer 5.

- (a) **The five work centers of a kitchen are :**

Preparation center, cooking center, sink center, serving center and storage center.

(i) **Preparation center :** It is also known as the mixing center. This is the place where all preliminary preparations are made before cooking the meal. There should be adequate space (at least 90-100cm long) for this counter as it facilitates mixing and prevents fatigue. It should be adjacent to the sink and just around the corner provided for cooking.

(ii) **Cooking counter :** This center is designed for all kinds of cooking and serving of hot food. It should not be away from the mixing and sink centers. The cooking equipment, whether it be the gas stove, gas range or any other; is the main equipment of this centre.

The height of the working center should be 34" from the floor and can vary according to the person working there, to avoid fatigue. Material to be used on kitchen counters should be resistant to acid stains, be able to withstand heat and should be easy to clean and maintain. Wall cabinets to store spices, small cooking utensils, etc. and base cabinets for heavy utensils must also be provided.

(iii) **Washing or sink center :** This center is often located between the cooking and the preparation area and has a provision for collecting trash and garbage. Dishwashing is done here, therefore a counter about 36" long on one side of the sink is adequate for stacking soiled dishes and about 32" long on the other side for storing clean dishes. Drainboards and double sinks are helpful in the tasks performed here.

(iv) **Serving center :** It can be a continuation to the cooking area or a separate table may be provided near the cooking area. A small window facilitates serving of food. It should have storage space for tableware and things like sauces, pickles, salt and pepper, etc.

(v) **Storage center :** Adequate space should be provided near the table, stove and sink; for keeping groceries and cooking utensils, pots and pans and cleaning material.



**(c) Factors affecting selection of a carpet for a room:**

- (i) **Colour :** Colour should be in accordance with the furnishing used. A large room can have a dark-coloured carpet. But, in a small room, the colour of the carpet should blend with the colour of the wall, showing continuity and wider space.
- (ii) **Plain or Patterned :** Plain carpets go well with patterned upholstery material. Oriental carpets look good in formal rooms.
- (iii) **Care Needed :** While choosing a carpet, one should look for how much care and maintenance would they require.
- (iv) **Durability :** Wool is considered to be the best kind of fibre for carpets because it is durable and colourfast. Cotton rugs are soft and crushable. They are not colour-fast. They are usually durable. Jute and hemp are used for making the backs of the carpets and rugs. Piles are best for traffic lanes.
- (v) **Stains :** Carpets with a shiny surface show sal and crushed marks more easily. Dark shades show lint, so medium shades are more practical.
- (vi) **Cost :** For low budget plan, felt jute coir or cotton rugs or even mats are a good choice. Carpets should always be bought from reliable stores or dealers.
- (vii) **Impressions :** High pile on carpet looks good but gets crushed more easily than short pile.

(Any Five)

**Answer 6.****(a) Factors affecting family budget are :**

- (i) **Composition of the Family :** The total number of members in the family along with the earning members, affects the family budget.
- (ii) **Family Life Cycle :** At which stage the family is at present *i.e.*, at the beginning stage, expanding stage or at contracting stage.
- (iii) **Economic Status :** The expenditure varies with the standard of living that the family has to maintain. It is determined by its income, education level and occupation of the members.
- (iv) **Religious Ceremonies and Celebrations :** The amount of money spent entertainment done by the family and observing and maintaining old traditional values also affects the budget of a family.
- (v) **Place of Stay :** If the family lives in a small town, rates are comparatively low, overall expenses on necessities are less and so the family can spend on luxury items. The distance of place of work from home also affects the family budget.

**(b) The need and reasons for savings are as follows (any five) :**

- (i) It reduces economic insecurity especially in the old age after retirement.
- (ii) It helps in the period of physical inability and during illness.
- (iii) Saved amount would be useful during an emergency *i.e.*, during loss of job, accident, natural calamities, loss of head of the family member (or earning member).
- (iv) It is useful for children's education, marriage or other family expenditure.
- (v) It is useful in making big purchases or investments like house, car, etc.

**Answer 7.****(a)** Refer to ICSE Paper, 2020 Answer 7(c).**(b)** After the child enters school and comes into contact with other children; individual games gives a way to group games and solitary play loses its charm. The child's circle of friends gradually widens.

Upon beginning school, the child enters the 'gang age' an age when social consciousness develops rapidly. Gang plays a dominant role in socialisation by helping the child learn how to get along with age-mates, helping him develop a rational conscience, helping him to learn appropriate social attitudes, and helping him to achieve personal independence.

The attitudes are formed and values are recognised in a manner, similar to the peer group friends. A child initiates his peer group friends because it gives a feeling of belongingness to the group. Moreover peer group provides an opportunity to understand the values of rules, regulations and restrictions which parents impose upon on a child.

A child starts learning the values and importance of rules. Peer also provides a feeling of emotional security in terms of similarity in thoughts, problems and ideas. However, the behaviour of the child is modified and moulded to suit the behaviour in group. A child very quickly learns games, songs, folk lores etc. from age-mates at new place.

The most important patterns of social behaviour developed in late Childhood include susceptibility to social approval and disapproval, suggestibility to group influences and contra suggestibility to adult influences, competition, good sportsmanship, responsibility, social insight, social discrimination, prejudice, and sex antagonism.

**Answer 8.**

**(a) Some methods of storing semi-perishable foods are :**

(i) Dry roast semolina and cereals before storing. Their storage life and flavour can be retained for longer period if they are stored in dry and air-tight containers.

(ii) Spices should be stored in dry, air tight containers to retain their flavour for longer time.

(iii) Potatoes, onion, ginger and garlic may be stored in a cool, dry and dark places. Storage temperature of potatoes should be maintained between 3°C to 10°C (38-50°F) to keep sprouting to a minimum.

(iv) Ghee, oils and butter should be stored in air-tight containers because air and moisture make them rancid.

(v) To preserve paneer for a longer time, cover it up with blotting paper and keep it in the refrigerator or keep it in cold water to preserve it for 2-3 days. Do not deep fry it because after frying it adds fat.

**(b) Principles of meal planning :**

(i) Knowledge of nutritional needs of the family members according to their age, sex and occupation (I.C.M.R.).

(ii) Use of five food groups in diet plan.

(iii) Knowledge of nutritive value of foods.

(iv) Knowledge of nutrients and their available sources.

(v) Use of Recommended tables (charts) of balanced diets (I.C.M.R.).

(vi) Use of available resources skill, knowledge, abilities (Human Resources).

(vii) Budget of the family allotted for food.

(viii) Planning in advance to save time and energy.

(ix) Composition of the family infants, children, teenagers and elderly people.

(x) Physiological phases of the family members pregnant and lactating mother.

(xi) Knowledge of seasonal availability of various food stuffs.

(xii) Dietary or traditional habits vegetarian, non-vegetarian, south indian or punjabi, etc.

(Any five)

**(c)** Pasteurised squashes and cordials spoil within a short period after they are opened, particularly in tropical climates. In such cases, it is desirable to use chemical preservatives. However, the use of chemicals should be properly controlled,

since their indiscriminate use is likely to create harmful effects.

The two important preservatives permitted in different parts of the world are :

**(i) Benzoic acid, (ii) Sulphur dioxide.**

It is the salt of benzoic acid called sodium benzoate, which is used as a preservative. The use of benzoic acid increases the presence of carbon dioxide. Benzoic acid is more effective against yeasts than moulds. But it does not stop lactic acid and vinegar fermentation.

Potassium meta-bisulphite is used as a salt of sulphur dioxide. Potassium meta-bisulphite is a crystalline salt and is fairly stable in natural or alkaline medium. It is decomposed by weak acids like carbonic, citric, tartaric and malic acids. When it is added to fruit juice or squash, the potassium radical reacts with the acid of the juice forming the corresponding potassium salt and the sulphur dioxide is liberated. Preservative effect of sulphurous acid depends not on its total quantity but on the availability of sulphur dioxide.

Fruits and vegetables which have red or purple colour, should be preserved by the use of sodium benzoate, not potassium meta-bisulphite, as the pigment anthocyanin which gives red or purple colour to fruits and vegetables, gets discoloured in the presence of sulphur dioxide.

**Answer 9.**

**(a)** Polyester is a synthetic fabric. It is called a wash and wear fabric as it is easy to launder, quick in drying and requires little or no ironing.

**(i) Preparation :** Examine the clothes for tear, holes, stains or any foreign particle that may stain it and treat them accordingly.

**(ii) Steeping :** Synthetic fabrics like polyester, nylon or their blends are very easy to wash. They need not be soaked if not very dirty. If soaking is necessary tap water should be used. For very dirty clothes, lukewarm water is recommended because hot water gives them too many wrinkles.

**(iii) Washing :** These fabrics can be washed with any soap or detergent. Since they are strong fabrics, methods of friction can be used gently for cleaning and removing dirt.

**(iv) Rinsing :** Synthetic fibres absorb very less water, hence they can easily be rinsed off. Though strong, synthetic fibres should not be wrung to remove extra water because by doing so, wrinkles might appear on synthetic fibres and wrinkles can be conveniently avoided, if the

clothes are left to drain away the water and then put for drying.

**(v) Drying :** Synthetic fabrics should be allowed to drip dry. They dry quite quickly. Even coloured synthetic, if solution dyed, can be dried in the sun without their colour fading out.

**(vi) Ironing :** As synthetic fabrics are wrinkle resistant and even less wrinkles appear if drip dried, they require little or no ironing.

- (b)** Ironing is a method used for finishing fabrics such as cotton, linen, silk and synthetic clothes to remove creases and give the garment a fresh crisp look.

For this, the cloth is spread on a flat and hard, but lightly padded surface. Hot iron is moved back and forth over it along the length of the fabric with pressure.

Different fabrics are ironed at different temperatures according to the heat they can withstand. Linens at 450°F, cotton at 400°F, silk at 100°F and synthetics at a low temperature.

In automatic iron, a thermostat is provided to maintain particular specified temperature and

thus the temperature of the iron can be controlled easily by setting the dial at the proper mark.

The most important precaution is the maintaining of appropriate temperature for ironing because if clothes are ironed at a temperature higher than required, they will turn yellow or may scorch or get burnt. Low temperature will not iron out the creases properly.

- (c) Qualities of a laundry soap can be determined in the following ways :**

**(i)** They should keep white clothes white or whiter.

**(ii)** They should shield the coloured clothes from fading.

**(iii)** They should also have builders and surfactants that enable there to work in any temperature.

**(iv)** They are prepared such that they remove tough stains very efficiently too.

**(v)** They should contain hydrogen peroxide and bleach which makes them even more efficient.

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GURUKUL

## QUESTIONS

### SECTION-A (40 Marks)

Attempt *all* questions from this Section

#### Question 1.

- (a) Define a triad colour scheme.\*\* [2]
- (b) State any two ways of taking care of carpets. [2]
- (c) What do you mean by a work triangle ? [2]
- (d) Name any two sources of light in a house.\*\* [2]
- (e) Name any two types of family budget. [2]

#### Question 2.

- (a) State any two characteristics of a cheque.\*\* [2]
- (b) Why is sorting of clothes an important step in the laundering process ? [2]
- (c) List any two characteristics of the children's peer group during late childhood.\*\* [2]
- (d) Define the term "Menarche".\*\* [2]
- (e) List any two uses each of calcium and iron in the adolescent diet.\*\* [2]

#### Question 3.

- (a) Define the term "meal planning". [2]
- (b) Name any two adolescent eating disorders.\*\* [2]
- (c) State any two factors affecting the safety of food at home. [2]
- (d) Sugar is hygroscopic in nature. Explain.\*\* [2]
- (e) Give two precautions to be followed while drying of woollen garments. [2]

#### Question 4.

- (a) Suggest any two precautions to be taken care during the blueing process. [2]
- (b) Define the term "Food adulteration".\*\* [2]
- (c) List any two standardization marks.\*\* [2]
- (d) Why should eggs not be washed before storing ? [2]
- (e) Differentiate between perishable and non-perishable food ? [2]

### SECTION-B (60 Marks)

Attempt any *four* questions from this Section

#### Question 5.

"Colour and light are an important part of our daily life".

\*\* Answer is not given due to change in the present syllabus.

In this context discuss the following :

- (a) Three dimensions of colour.\*\* [5]
- (b) Factors to be considered while choosing curtains for the home. [5]
- (c) Choice of lighting in various rooms of the house.\*\* [5]

#### Question 6.

"Management of money is an important aspect of Home Science."

In this context explain the following :

- (a) The procedure of opening a savings account.\*\* [5]
- (b) A fixed deposit account and its advantages.\*\* [5]
- (c) Importance of budgeting. [5]

#### Question 7.\*\*

"Adolescence is a period of transition."

In this context answer the following:

- (a) Role of the endocrine glands. [5]
- (b) State any five factors that lead to conflict between adolescent and their parents. [5]
- (c) State measures to prevent body odour. [5]

#### Question 8.

- (a) Discuss the need for adequate nutrition and a balanced diet for the elderly. [5]
- (b) Describe any five factors affecting meal planning. [5]
- (c) Explain the five food groups and their nutritional contribution. [5]

#### Question 9.

"Laundering is a combination of cleaning and finishing".

In this context explain the following :

- (a) Household method of laundering a white cotton shirt. [5]
- (b) Advantages of using detergent over soaps. [5]
- (c) Storage of clothes. [5]

#### Question 10.\*\*

Write short notes on the following :

- (a) The role of consumer education. [5]
- (b) State any five problems faced by consumers. [5]
- (c) Kesari dal (*Lathyrus sativus*) and its ill-effects. [5]



## ANSWERS

## SECTION-A

## Answer 1.

- (b) (i) Clean the carpet with a brush.  
 (ii) Brushing should always be done on one side and the pile should be stroked so that dirt is easily removed.
- (c) Refer to ICSE Paper, 2020 Answer 2(e).
- (e) (i) **Surplus Budget-** Income is more than expenditure and the family has extra money to save.  
 (ii) **Balanced Budget-** Both ends meet *i.e.*, income and estimated expenditure are almost the same.

## Answer 2.

- (b) Sorting of clothes is an important step in the laundering process both to protect it from damage like tearing, decreases the chances that a garment is going to bleed over other reduce and for better and more efficient washing and drying.

## Answer 3.

- (a) Meal planning can be defined as “the implementation of the principles of nutrition in one’s daily diet in an appetising way.”
- (c) *Cleanliness in the kitchen* and *hygienic handling of food* are two factors affecting the safety of food at home.
- (e) Two precautions to be followed while drying of woolen clothes :  
 (i) Dry in shade and spread flat within the outline marked for its original shape.  
 (ii) It should never be hung, otherwise it will be deformed.

## Answer 4.

- (a) (i) Fabrics should not be left standing or dipped for long in the blue water otherwise patches will appear.  
 (ii) Blued fabrics should be dried in sun for better results.
- (d) Eggs should not be washed before storing because pores in the porous shell of eggs are usually filled with organic material. On washing these organic materials get washed off thus making the pores open for micro-organisms to attack.
- (e) The term perishable refers to food items requiring refrigeration and special handling. Differentiation of perishable and non perishable foods is on the basis of moisture content.

**Perishable foods** cannot be stored for more than 2-3 days under normal conditions. Milk, milk products, meat, fish, egg, poultry and cooked vegetables are included in this group.

**Non-perishable foods** can be stored for longer times as compared to perishable foods. Cereals, pulses, sugar, coffee, tea, jaggery, and salt constitute this group.

## SECTION-B

## Answer 5.

- (b) The following factors should be kept in mind while choosing curtains for home :
- (i) Small rooms give an effect of being larger if curtains and draperies blend with walls.
- (ii) Rooms of low ceilings give an appearance of height if diagonal lines are used on curtains, as diagonal lines carry the eye from ceiling to floor creating an impression of height.
- (iii) Plain curtains should be used in rooms that have more pattern in them or rooms that contain too many pictures or have much pattern in furniture.
- (iv) To create an impression of space in small rooms plain curtains can be used with plain walls to give a sense of continuity and spaciousness.
- (v) When choosing curtains with patterns, the size of a room, colour of the furnishing and the look expressed by it should be considered.
- (vi) If there are too many windows in a room, the pattern of curtains should be less striking. The way out is to use a single curtain over a group of windows on the same wall.

## Answer 6.

- (c) (i) Budget acts as an intelligent guide to spending by ensuring that the spending is not greater than the income.  
 (ii) Budget helps one to get ready for contingencies or unseen costs.  
 (iii) Budgeting helps the family to see how best they can use their income to attain goals.  
 (iv) Budget helps the members to adjust themselves within means to achieve greatest satisfaction.  
 (v) It helps one to live within one’s income.  
 (vi) A budget allows one to regulate the funds rather than the money regulating you.

- (vii) It relieves the family members from future worries.
- (viii) It helps in developing goods buymanship.
- (ix) It helps to save money for future plans directly.

#### Answer 8.

- (a) The aged people should follow a diet pattern that is regulated to meet their specific needs. They require less calories due to decrease in physical activity and lower BMR. The intake should be such so as to maintain normal weight. Women require 1100-1800 calories per day, while men require 2100-2500 calories per day. About 50-60% of the calories should be provided in the form of carbohydrates, 20-30% from proteins (preferably plant origin). They need to avoid large quantities of fat with emphasis on quality and source of fat. Protein intake should be similar to that of an adult *i.e.*, 1 gm/kg body weight. Illness may require an increase up to 1.4 gms/kg body weight. Vitamin and mineral supplements may be given. Their diet should include liberal intake of water and roughage, for normal functioning of the renal system and the colon. Older people prefer diets that are soft, requiring less chewing and whole grains in order to avoid constipation.

#### (b) Factors affecting meal planning are :

- (i) **Nutritional needs-** A family may comprise of adults, children, adolescents and old people. The diet should be such that it caters to the individual nutritional needs.
- (ii) **Sources of Nutrients-** Knowledge of different sources of food nutrients is very important. Eg- Protein milk and pulses.
- (iii) **Food Budget of the Family-** The money available will decide what will be purchased for the family. When the budget available per day is low it is necessary to have good knowledge of less expensive foods which have high nutritive value.
- (iv) **Likes and dislikes-** Food preferences of the family members should be remembered while preparing food. Carefully develop good eating habits in children. Regarding children, it is advisable not to cater too much to individual's whims and fancies.
- (v) **Suitable combinations-** The protein content of the diet is improved, if cereals and pulses are taken together. Idli-Dosa, Dal-Chapati etc are examples of good combinations as they enhance the nutritional values of food stuffs.

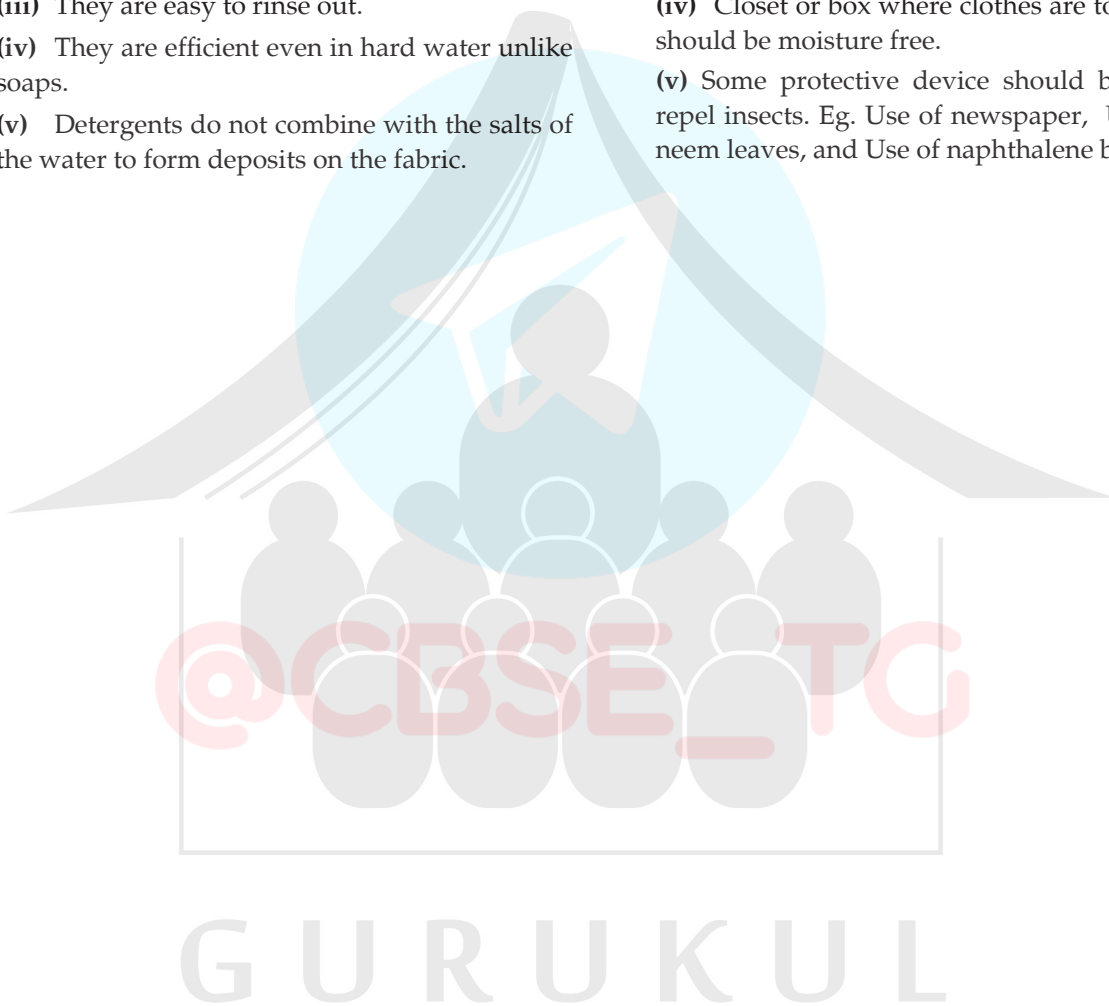
- (c) The five major food groups and their nutritional contributions are :

| Food Groups                                                                                                                                                                                                                                              | Main Nutrients                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| 1. <b>Cereals, Grains and Products-</b> Rice, wheat, ragi, bajra, maize, jowar, bajra, riceflakes, wheat flour etc.                                                                                                                                      | Energy, protein. Fat, vitamin B1, vitamin B2, folic acid, iron, fiber etc                                               |
| 2. <b>Pulses and Legumes-</b> Bengal gram, Black-gram, Green gram, Lentil (whole as well as dals) cowpea, peas, rajma, soyabeans, beans etc.                                                                                                             | Energy, protein. Fat, vitamin B1, vitamin B2, folic acid, iron, fiber calcium etc.                                      |
| 3. <b>Milk and Meat Products-</b><br><b>Milk:</b> milk, curd, skimmed milk, cheese<br><b>Meat :</b> Chicken liver, fish, egg, meat                                                                                                                       | Protein, fat, vitamin B2, Calcium, Vitamin A.<br><br>Protein, fat, vitamin B2, vitamin A. vitamin B12.                  |
| 4. <b>Fruits and Vegetables-</b><br><b>Fruits:</b> mango, guava, tomato ripe, papaya, orange, sweet lime, water melon.<br><b>Vegetables (green Leafy)</b> Amaranth, spinach, gogu, drumstick leaves, coriander leaves, mustard leaves, fenugreek leaves. | Carotenoids, vitamin C, fibre, carbohydrates etc.<br><br>Fats, carotenoids, vitamin B, folic acid, calcium, iron. Fibre |
| 5. <b>Fats and Sugars-</b><br><b>Fats:</b> Butter, ghee, hydrogenated oils, cooking oils, like groundnut, mustard, coconut oil.<br><b>Sugars:</b> Sugar Jaggery                                                                                          | Energy, Fat.<br><br>Energy.                                                                                             |

#### Answer 9.

- (a) The cotton shirts wrinkle easily, so they require frequent laundering. Since they possess good heat resistance they can be easily placed in boiling water and can be washed with any kind of friction and strong soap.
- (i) **Preparation :** Examine the shirt for tears, holes and stains. Mend all tears, replace button if required and treat for stains if any.
- (ii) **Steeping :** White cotton shirt can be soaked overnight. If less dirty it can be soaked for an hour.
- Washing-** cotton is a strong fabric and becomes stronger when wet. Therefore, friction or rubbing or scrubbing method cleans them quickly and conveniently.
- (iii) **Rinsing :** Two to three times in clean tap water is very important till soapless water is felt.

- (iv) **Starching and Blueing** : Blueing is advised for white cotton shirts only. To save time and avoid wasting starch and blue and to obtain good results, starching and blueing may be combined in one process.
- (b) The advantages of using detergents over soaps are :
- (i) They are readily soluble even in cold water.
  - (ii) They have lower surface tension. Therefore, they have more efficiency than soaps.
  - (iii) They are easy to rinse out.
  - (iv) They are efficient even in hard water unlike soaps.
  - (v) Detergents do not combine with the salts of the water to form deposits on the fabric.
- (vi) They are cheaper than soap.
- (c) Some important point for storing the garments are :
- (i) Dirty clothes should not be stored.
  - (ii) Clothes to be stored must be fully dry. Moisture left in clothes will promote moths and mildew. Just before storing, clothes should be exposed to strong sun.
  - (iii) Closet or box where clothes are to be stored should also be exposed to sun rays for sometime.
  - (iv) Closet or box where clothes are to be stored should be moisture free.
  - (v) Some protective device should be used to repel insects. Eg. Use of newspaper, Use of dry neem leaves, and Use of naphthalene balls .



## QUESTIONS

**(Two Hours)**

Answer to this Paper must be written on the paper provided separately.

You will **not** be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

Attempt **all** questions from **Section A** and **any four** questions from **Section B**.

The intended marks for questions or parts of questions are given in brackets [ ].

### SECTION-A (40 Marks)

Attempt **all** questions from this Section.

#### Question 1.

- (a) What are bio pesticides ? Give one example of a bio pesticide. [2]
- (b) What are biosphere reserve ? [2]
- (c) List any two problems that waste can cause to our environment. [2]
- (d) Explain the working of Remote Sensing Satellites. [2]
- (e) What is the impact of increasing population on the land ? [2]

#### Question 2.

- (a) List two aims of MNC's. [2]
- (b) How has LPG benefitted the rural areas of India ? [2]
- (c) What are organic fertilizers ? Give any one disadvantage of organic fertilizers. [2]
- (d) Name any two clean fuels. [2]
- (e) How can the government encourage child education ? [2]

#### Question 3.

- (a) State any two reasons for fossil fuel depletion. [2]
- (b) Why is it important for hospitals to reduce their solid waste ? [2]
- (c) What do you understand by the term 'debt trap'? [2]
- (d) What is the need for biotechnology in agriculture ? [2]
- (e) Define reforestation. [2]

#### Question 4.

- (a) State the difference of a core and buffer zone in a tiger reserved area. [2]
- (b) What is the link between growing population and environment degradation ? [2]

- (c) What are bunds ? How do they reduce soil erosion ? [2]

- (d) How has construction work contributed to degradation of the environment ? [2]

- (e) Mention any two ways by which industrial pollution can be controlled. [2]

### SECTION-B (40 Marks)

Attempt **any four** questions from this Section.

#### Question 5.

- (a) Define soil erosion. Explain any two man-made and any two natural causes for soil erosion. [5]
- (b) What is biodiversity ? Explain four reasons for loss of it in recent times. [5]

#### Question 6.

- (a) Define incineration. write any two advantages and any two disadvantages of incineration. [5]
- (b) What do you understand by international trade ? List four benefits from international trade. [5]

#### Question 7.

- (a) What is urbanization ? How can the government help to facilitate a better lifestyle to urban areas ? [5]
- (b) Mention any two threats faced by Taj Mahal monument. State any three steps that can be taken to reduce its degradation. [5]

#### Question 8.

- (a) Write a note on women centered human development as a strategy for controlling the population growth. [5]
- (b) When and where was the UN's International conference on Population and Development held ? Explain any three objectives. [5]

#### Question 9.

- (a) What is Agro Forestry ? Discuss any four objectives of Agro forestry. [5]
- (b) What is sustainable agriculture ? Explain any four regenerative farming techniques. [5]

#### Question 10.

- (a) Define Trickle Drip Irrigation. State any two merits and two demerits of it. [5]
- (b) What are the conservation strategies for wildlife at national and international levels ? Explain any one in detail. [5]



## ANSWERS

## SECTION-A

## Answer 1.

- (a) Bio pesticides are biological agents used for control of weeds, insects and pathogens. Example: *Bacillus thuringiensis*, spider, frog, snake, ducks, etc.
- (b) Biosphere reserves are the extended protected land or coastal environment meant for the conservation of wild animals and plants. It aims at in-situ conservation of ecosystems and genetic resources. It is also meant to restore the traditional life of the tribal residing in the area.
- (c) Environmental problems caused by waste are :
- 1. Air pollution :** Waste create a threat to our environment by forming hazardous gases like methane from the landfill biodegradation. Methane is a potent greenhouse gas. There are over ten toxic gases released from landfills. Methane gas is naturally produced during the process of decay of organic matter. As methane gas is formed, it builds up pressure and then begins to move through the soil polluting air and soil.
  - 2. Groundwater pollution :** Accumulation of waste pollutes groundwater by leaching the waste into the underground water. The major issue caused with landfill leachates is the leakage of a large number of toxins into fresh waterways, which ultimately reaches our homes as drinking water or water for everyday use.
- (d) Remote sensing satellites analyse images from observation satellites on a daily basis and scan them for possible changes. They have sensors that give two-dimensional information that is either a photographic image or an array of digital data of the Earth. For example, when too much green in one particular area starts disappearing, this can be an indication that illegal logging or deforestation is taking place.
- (e) Impact of increasing population on the land:
1. Forests and grasslands are cleared.
  2. Poor land management often leads to degradation of land.
  3. Clearing of forests and grassland leads to loss of habitat for wildlife and loss of biodiversity.
  4. Ecological imbalance in nature.
  5. Leads to soil erosion, pollution of air, water, and land.

## Answer 2.

- (a) The main aims of MNCs are :
1. To expand the business beyond the home country in the multiple countries.

2. To minimise the cost of production especially labour cost.

3. Making best use of resources and technology.

4. To maximize profits by exploiting the resources and pay very little attention to the environment.

- (b) In rural areas one of the primary and most used source of fuel is wood. But LPG has following benefits over wood :

1. Available at an affordable price.
2. Good substitute for polluting fuels e.g. Fuel wood.
3. LPG is a clean fuel.
4. Saves cooking time.
5. They do not have to collect and accumulate firewood.
6. It can be easily transported to rural areas.

- (c) Organic fertilizers are the fertilisers derived from animal matter, animal and human excreta and decomposed plant matter. Disadvantages of organic fertilizers are :

1. The level of nutrients present is often low in organic fertilizers.
2. It often takes longer to help plant grow.

- (d) CNG, bio-diesel, hydrogen and LPG are clean fuels.

- (e) Government can encourage child education by following methods :

1. Creating awareness on importance of education.
2. Introducing schemes like mid-day meals, distribution of free books and study materials.
3. Appreciating and giving encouragement prizes or rewards to good performers.
4. Organise free pick up system for children who stay at a distance.

## Answer 3.

- (a) 1. Fossil fuels are non-renewable resources. It takes thousands of years for the formation of fossil fuels. The rate of formation of fuels is much lower than the rate of consumption of fuel. This is one of the reasons for depletion of fossil fuel.
2. Over consumption of fossil fuels is another reason for fossil fuel depletion. Not all countries are using sustainable fuels or sources of energy. This creates a lot of demand for fossil fuels.
3. For many decades it is used to generate electricity.
4. Increase in the number of vehicles.
- (b) Certain waste products of hospitals like blood, tumours, organs or body parts that are removed during surgery, etc. are bio-degradable in nature. Injections, syringes, medicine bottles etc. are

non-biodegradable waste. However, such wastes should be appropriately handled as it can spread diseases and infections in surrounding areas.

- (c) Debt trap is a situation where a new debt is added in order to pay an existing debt. This is an incentive structure that lures individuals into accepting long term debt obligations under conditions that strongly favour the lender. Developing countries are often caught in a debt trap. To repay their debts they are fast depleting their natural resources.

- (d) The role of biotechnology in agriculture is :

1. Increase in the crops yield through introducing high-yielding varieties. Thus, agriculture productivity increases.
2. The crops are resistant to biotic and abiotic stresses like diseases, pests, withering, etc
3. Reduces crop loss due to pest invasion. Thus, the production cost is low.
4. The nutritional values of foods can be increased. Salt tolerance in plants also increases.
5. Biotechnological methods are sustainable methods which aims at optimum and planned usage and reduced wastage of resources.

- (e) The term reforestation is a process of restoring and regenerating areas of woodland or forest that may have existed long ago but were deforested or otherwise removed at some point in the past.

#### Answer 4.

- (a) In a Tiger Reserve, the core zone is a legally protected central zone which remains undisturbed by any kind of human activity. The buffer zone which lies outside the core zone is used for education and research activities.

- (b) Growing population impacts environment in the following way :

1. Growing population demands more resources thus causing depletion of natural resources.
2. Growing population increases the human activities which leads to pollution of air, water and soil.
3. Global warming, ozone layer depletion is a result of human activities.

- (c) Bunds are earthen barriers with slopes in agricultural lands, made of stone or soil or even crop remains. They reduce soil erosion by:

1. Reducing runoff along contour lines.
2. Increasing water infiltration.

- (d) Construction work is impacting environment in following ways :

1. For constructing building, a lot of forest areas are cleared. Thus, we are depleting trees which in turn is impacting the balance of nature and is a treat to wildlife ecosystem. It has caused physical disruption also.

2. Construction activities is causing pollution of air, water and soil. Thus, the renewable resources are also getting depleted.

- (e) Industrial pollution can be controlled by :

1. Managing the industrial waste efficiently. This could involve Reducing, Reusing and Recycling.
2. Industrial effluents should be treated to remove or to nullify the harmful substances before releasing into the environment.
3. Construction of very tall chimneys and the efficient devices and clean technology.
4. Use of alternative fuels and of pollution control devices.

### SECTION-B

#### Answer 5.

- (a) Soil erosion is the removal of the upper layer of soil due to the agents like water, rain, wind and human activities.

#### Natural causes of soil erosion are :

1. **Wind** : When strong winds blow, the topsoil along with the organic matter is carried away by the wind. This happens more often when the land is not covered with grass or plants. Such conditions are very common in desert and semi-desert regions where strong winds blow very frequently.

2. **Water** : When it rains in the hilly areas, the soil gets washed away towards the plains. The running water deposits the mineral-rich soil in the riverbed and over the years this deposition of soil can change the course of the river. This can lead to floods which cause the destruction of life and property. Water erosion leads to loss of agriculture potential.

3. Natural calamities like floods, cyclone and tsunamis also cause soil erosion. Runoff of rain water on hill slopes also causes soil erosion.

#### Man-made causes of soil erosion are :

1. **Farming** : Agriculture is one of the most significant activity that accelerates soil erosion because of the amount of land that is farmed and how much farming practices disturb the ground. Farmers remove native vegetation and then plough the land to plant new seeds. Fine soil is blown away by wind.

2. **Overgrazing** : Grazing animals wander over large areas of pasture or natural grasslands eating grasses and shrubs. Grazers expose soil by removing the plant cover for an area. They also churn up the ground with their hooves. If too many animals graze the same land area, the animals' hooves pull plants out by their roots. A land is overgrazed if too many animals are living there.

**3. Construction :** Constructing buildings and roads churns up the ground and exposes soil to erosion. In some locations, native landscapes, such as forest and grassland, are cleared, exposing the surface to erosion.

- (b) The Biodiversity generally refers to the variety and variability of life on Earth. It is the variety of flora and fauna giving rise to the large qualitative and quantitative differences in living organisms. Our planet Earth nourishes an enormous diversity of life. Such a diverse forms of life boosts ecosystem productivity where each species, no matter how small or tiny, all have an important role to play. Biodiversity denotes the variation at the genetic, species and the ecosystem level.

Four reasons for loss of biodiversity are :

**1. Habitat loss, alteration and fragmentation :** Human beings encroach and exploit natural habitat of plants and animals for various reasons like cultivation of crops having commercial value, extracting resources, etc. The transformation of the natural areas determines not only the loss of the vegetable species, but also a decrease in the animal species associated to them.

**2. Over-exploitation :** Human beings are depended on nature for our basic needs like food, clothing, shelter. But with technological advancements, we have explored many other uses of nature. Therefore, our need has turned into greed. Activities like hunting, fishing, etc. have led to extinction of various species. It is also a result of over-exploitation of natural resources. In an ecosystem, each organism has an important role to play.

**3. Introduction of exotic species and genetically modified organisms:** Species originating from a particular area are called exotic species. Genetically modified organisms (GMOs) are those organisms which are artificially created in the laboratory by forcing genes from the DNA of one species into the genes of an unrelated plant or animal. Introduction of such organisms into new natural environments can lead to different forms of imbalance in the ecological equilibrium. Some exotic species and GMOs turn invasive and predate or compete with indigenous species for resources, which can lead to extinction of indigenous species.

**4. Co-extinctions :** When a species becomes extinct, the plant and animal species associated with it in an obligatory way also become extinct. Extinction of one species disturbs the food chain as its predator will starve. Many organisms serve as hosts, pollinators while some organisms share symbiotic relationship with each other. Such parasites will also suffer extinction along with the

main victim. For example - The female rhinoceros stomach bot fly lays eggs behind the endangered (*Diceros bicornis*) and the white rhinoceros (*Ceratotherium simum*) ears or horns or neck and then the flies' larvae enter the animal's digestive tract and digs into the stomach lining and then are excreted out and the lifecycle restarts.

#### Answer 6.

- (a) A waste treatment process which includes the combustion of waste for recovering the energy is called as incineration. When the process of incineration is coupled with high temperatures, it is termed as thermal treatment. Incinerators convert waste materials into heat, gas, steam, and ash. These products are further used to produce energy. Incineration is carried out both on a small scale by individuals and on a large scale by industry.

#### Benefits of incinerators are :

1. Incinerators occupy less space compared to landfills. In densely populated areas or small towns, where there is insufficiency of land space, identification and selection of site for landfills could be difficult task. In such conditions, mounting an incinerator is a better option.
2. The mass of solid wastes can be reduced by 80- 90% by employing incineration.
3. Incineration plants are capable for producing energy and can substitute other power generation plants.
4. It is a feasible method of disposing of certain hazardous waste materials like biological medical waste. It saves a lot of money on transport.

#### Drawbacks of incinerators are :

1. Incineration facilities are expensive to build, operate, and maintain. These facilities also require skilled staff to run and maintain them.
  2. Incinerators are not feasible for places which, majorly generates organic or biodegradable wastes. Citizens and municipality authorities should be encouraged to make compost from biodegradable wastes, rather than burning it. Thus, it causes environmental pollution.
  3. The emissions from incinerators include toxic materials like nitrogen oxide, heavy metals, particulates, furan, dioxin, etc. Out of these some materials are potent carcinogens. These emissions also have adverse effects on environment, like pollution and global warming.
- (b) International trade is the exchange of goods and services between countries and regions. Trading globally gives consumers and countries the opportunity to be exposed to goods and services not available in their own countries, or which would be more expensive domestically.



**Benefits of international trade are :**

- 1. Access to variety of goods :** International trade brings in different varieties of a particular product from different destinations. This gives consumers a wide array which will not only improve their quality of life but as a whole it will help the country grow.
- 2. Raises the standard of living :** International trade helps generate more employment through the establishment of newer industries to cater to the demands of various countries. This will help countries to bring-down their unemployment rates.
- 3.** International trade enables different countries to sell their surplus products to other countries and earn foreign exchange.
- 4.** International trade also enhance relationships among nations. Forming a more united world, countries no longer operate in isolation.

**Answer 7.**

- (a)** An urban area is a human settlement with high population density and infrastructure of built environment. Urbanization refers to the population shift from rural to urban areas in search of jobs and better living standards resulting in concentration of population in cities and the ways in which society adapts to the changes. It is basically the process by which towns and cities are formed and become larger as more people begin living and working in central areas.

Urban lifestyle can be improved by :

- 1. Efficient land use and city planning :** With the increased rate of urbanisation, city planning is very crucial to accommodate the huge population. It is a process which aims to develop and use of land, involvement of concerned authorities, protection and use of the environment, public welfare, and the design of the urban environment, including air, water and the infrastructure passing into and out of urban areas, such as transportation, communication and distribution networks. Urban planners plan for the development and management of urban and suburban areas by considering all the appropriate criteria. Such a comprehensive planning is required to build well equipped and aesthetically city.

- 2. Resource planning :** There are hardly any land available for growing plants in cities. Therefore, the staple food products like vegetables, fruits, pulses, grains, etc. are imported from nearby agricultural areas.

In urban areas, the construction of houses, footpaths and roads has left little exposed earth for water to soak in. Therefore, there are hardly any scope for groundwater recharge.

Most of the energy sources that we use are either non-renewable or take a very long time to replenish. Therefore, judicious use of such resources is essential.

- 3. Transportation or Traffic management :** Managing traffic in cities is a huge challenge. Problems such as congestion, road capacity and networks and pollution are difficult to combat. Incapability of managing traffic is leading to problems like pollution and unsafe conditions, accidents, etc. Thus, a well developed public transport system is essential.

- 4. Planning construction activities :** It is important to explore environmentally and economically sound design and development techniques in order to design buildings and infrastructure that are sustainable, healthy and affordable. Therefore, infrastructure and the environment are inseparably linked.

- 5.** Low sulphur fuel oils in the furnaces and boilers should be used.

- (b)** Taj Mahal, the white marble structure was built by Mughal emperor ShahJahan in the 17<sup>th</sup> century. It was declared as the world heritage by UNESCO in 1983. But now the structure has developed yellowish tinge as a result of increased pollution in that area. Taj Mahal is being exposed to sulphur dioxide and Suspended Particulate Matter (SPM). It is surrounded by 512 industries that give out gaseous pollutants that is affecting it. Mathura Oil Refinery which is situated close to that area releases its by products in the Yamuna river. This has led to acid rain, which is also responsible for damaging the marbles of Taj Mahal. A Public Interest Litigation (PIL) was filed in 1984 to express concerns over the havoc caused by such industries. Later, The Supreme Court ordered more than 200 industries in that vicinity to adopt pollution control measures. The refinery, foundries and pit furnaces are all found to be major sources of pollution.

**Steps that can be taken to reduce its degradation are :**

- 1.** Industries must have devices for removal of potential pollutants before the industrial waste is let out to the environment. Scrubbers, closed-collection recovery systems, dry and wet collectors, filters, electrostatic precipitators effectively remove the pollutants.
- 2.** Location of the industries should be carefully relocated, chosen considering the topography and the wind direction.
- 3.** Use of eco-friendly and renewable source of energy like wind energy, biomass, solar energy, etc. should be encouraged.



4. Machinery of industries should be maintained and checked for their efficiency regularly. Mal-functioning machineries undergo incomplete combustion of fuel leading to pollution. Thus instruments for emission control should be installed.

5. Creation of a green belt area around the Taj Mahal.

#### Answer 8.

(a) Women centred human development as a strategy for controlling the population growth :

1. Women need to be counselled on the reproductive processes and the pros and cons of various contraceptive techniques to avoid unwanted pregnancies. It gives them an understanding of childcare. This leaves little scope for bearing and rearing of children.

2. Education of girls is important as it removes age old superstitions. Education also opens opportunities for them to work and follow their goals.

3. They should be made aware of how the quality of life will be much better with less population since lot of issues are related with the enormous growing population.

4. Child marriage and forced pregnancy are some of the evil practice which need to be eliminated from its roots and awareness in this regard is the first step towards the development of the women and the nation as a whole.

(b) The UN's International Conference on Population and Development was convened in Cairo, Egypt, from 5 to 13 September in 1994. The goals of Cairo conference were :

1. **Universal education** : Universal primary education in all countries by 2015. The countries were asked to urge to provide wider access to women for secondary and higher-level education as well as vocational and technical training. It also encouraged to bring up new schemes and facilities for this purpose.

2. **Reduction of infant and child mortality** : Countries should strive to reduce infant and under-5 child mortality rates by one-third or to 50-70 deaths per 1000 by the year 2000. By 2015 all countries should aim to achieve a rate below 35 per 1,000 live births and under-five mortality rate below 45 per 1,000.

3. **Reduction of maternal mortality** : An increasing rate of maternal mortality was observed. On analysis it was found that the main reasons were lack of awareness and unavailability of quality medical facilities. Disparities in maternal mortality within countries and between geographical regions, socio-economic and ethnic groups should be narrowed.

4. **Access to reproductive and sexual health services including family planning** : Family-planning counselling, pre-natal care, safe delivery and post-natal care, prevention and appropriate treatment of infertility, prevention of abortion and the management of the consequences of abortion, treatment of reproductive tract infections, sexually transmitted diseases and other reproductive health conditions and education, counselling, as appropriate, on human sexuality, reproductive health and responsible parenthood. Services regarding HIV/AIDS, breast cancer, infertility, and delivery should be made available.

#### Answer 9.

(a) Agro forestry is land use management system in which trees or shrubs are grown around or among crops or pastureland. It is a system that integrates cropland or livestock with trees and shrubs. Agro forestry systems include both traditional and modern land-use systems where trees are managed together with crops and animal production systems in agricultural settings. They are dynamic, ecologically based, natural resource management systems that diversify and sustain production in order to increase social, economic and environmental benefits for land users at all scales.

**The objectives of agro forestry are :**

1. To reduce pressure on natural forests for obtaining timber as well as non-timber produce.

2. To check soil erosion and to maintain the natural fertility of the soil.

3. To maintain ecological balance along with proper utilisation of farm resources.

4. To make best use of all the available resources like land, manpower, livestock, ecological factors, etc. to obtain a variety of forest products such as food, fuel, fodder, livestock, recreation, etc.

(b) Sustainable agriculture can be defined in many ways as a farming practice and method that is profitable, environmentally friendly, and good for the community. It harnesses new technology and renews the best practices of the past.

**Following are the best practices of sustainable agriculture :**

1. Inter cropping in which two or more crops are grown together, each must have adequate space to maximise cooperation and minimise competition.

2. Crop rotation is the practice of growing a series of dissimilar crops in the same area in sequential seasons.

3. Agroforestry is planting trees along agricultural fields to increase tree cover.

4. Polyculture is the practice of growing multiple crops on one piece of land.

**Answer 10.**

- (a) Trickle drip irrigation is a process of supplying adequate amount of water to the plants slowly and directly to the soil. In drip irrigation, plants are watered in such a way that only the part of soil in which roots are anchored is wetted. Drip irrigation is apt for the crops which are grown in rows and contours. Mainline pipe, sub-line pipe, drippers, filters, valves and pressure regulators are the components of drip irrigation system.

**Merits of drip irrigation system are :**

1. This system is very effective in minimising and mitigation soil erosion and degradation.
2. It almost suits all types of soil and for all rows.
3. Water distribution to all crops is uniform.
4. Sufficient amount of water is used. Drip irrigation does not give scope to water wastage.
5. Recycled waste water can be also used in the drip irrigation system.
6. Weed growth is lessened as extra water does not accumulate on the soil.

**Demerits of drip irrigation system are :**

1. Initial cost for installing drip irrigation components is more than the conventional irrigation system.
2. Pipelines and valves of drip irrigation are usually made of plastic. These components may damage due to the continuous exposure to the heat of the sun and gets blocked easily.
3. The components need maintenance. The filters should be regularly checked for accumulation of substances. If the filters are clogged, the water supply will not be proper.
4. Not practical for most farming techniques.
5. Farm does not get irrigated uniformly.

- (b) It is important to realize the economical, ecological, aesthetical, legal and ethical reasons to conserve biodiversity. Plenty of organisations and environmentalists are coming up with various ways to conserve biodiversity. Understanding of patterns of diversity and the reasons for their decline in population is essential to formulate appropriate measures of conservation.

Imposing appropriate laws and regulation is essential conserving biodiversity at the national and international levels. Several international organisations like IUCN, UNESCO, etc are collaboratively function with national governments to conserve biodiversity. Some of them are detailed below :

**1. Wildlife Protection Act (1972) :** The Wildlife Protection Act, 1972 is an Act of the Parliament of India enacted for protection of plants and animal species. The Act aims to provide protection for

wild animals, birds and plants; and also concerns with the matters connected with wildlife. It extends to the whole of India, except the State of Jammu and Kashmir which has its own wildlife act. It has six schedules which give varying degrees of protection.

**2. Project Tiger, 1973 :** Project Tiger is a tiger conservation programme launched in 1973 by the Government of India. The project aims at ensuring a viable population of Bengal tigers in their natural habitats and also to protect them from extinction. The project also aimed at preserving areas of biological importance and natural heritages. Project tiger worked on measures to mitigate the factors that led to decline in tiger's population.

**3. IUCN :** It is a membership union composed of both government and civil society organisations. It provides public, private and non-governmental organisations with the knowledge and tools that enable human progress, economic development and nature conservation to take place together. It works on six major concerns dedicated to species survival, environmental law, protected areas, social and economic policy, ecosystem management, and education and communication. IUCN also maintain the red data book consists of all information about extinct and endangered species.

**4. The Ramsar convention on wetlands (1971) :** The Ramsar Convention on Wetlands of International Importance is an international treaty for the conservation and sustainable use of wetlands. It is named after the city of Ramsar in Iran, where the Convention was signed in 1971. The mission of the Ramsar Convention is to conserve and monitor the use of all wetlands in a sustained manner through local, regional and national actions and international cooperation.

**5. CITES :** CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. It also accords varying degrees of protection to more than 35,000 species of animals and plants.

**6. The Convention on Biodiversity :** The Convention on Biological Diversity (CBD) is a multilateral treaty, which has three main goals: the conservation of biodiversity, sustainable use of its components and the fair and equitable sharing of benefits arising from genetic resources. Its objective is to develop national strategies for the conservation and sustainable use of biological diversity.

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# ENVIRONMENTAL SCIENCE

# 2019

## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions from this Section.

#### Question 1.

- (a) What are secondary cities ? [2]
- (b) Define zoning. State one benefit of zoning. [2]
- (c) What are tree crops ? [2]
- (d) Give two disadvantages of mixed cropping. [2]
- (e) State two advantages of using public transport system. [2]

#### Question 2.

- (a) What are genetically modified organisms ? [2]
- (b) List any two strategies for promoting women-centered development. [2]
- (c) State any two advantages of crop rotation. [2]
- (d) Define nuclear energy. State any one use of nuclear energy. [2]
- (e) What is meant by the term 'global food security' ? [2]

#### Question 3.

- (a) State two features of a National Park. [2]
- (b) Give two examples of non-biodegradable materials. [2]
- (c) Define international trade. [2]
- (d) Mention two benefits of recycling paper. [2]
- (e) Why was the Montreal Protocol designed ? [2]

#### Question 4.

- (a) Explain the concept of alternate technology. Give a suitable example. [2]
- (b) Define the term composting. [2]
- (c) Name any two fuels that can reduce air pollution due to domestic cooking. [2]
- (d) Education is necessary for controlling overpopulation. Justify this statement with two reasons. [2]
- (e) Give two advantages of using CNG as a fuel. [2]

### SECTION-B (40 Marks)

Attempt **any four** questions from this Section.

#### Question 5.

- (a) List any five measures for reducing air pollution from vehicles. [5]
- (b) What is solid waste ? List four suitable options to produce less solid waste in our surroundings. [5]

#### Question 6.

- (a) Discuss the ecological reasons for conserving biodiversity. [5]
- (b) List any three advantages and two disadvantages of using solar energy. [5]

#### Question 7.

- (a) Explain any three suitable measures to regulate the activities of multinational companies which pollute the environment. [5]
- (b) What is Integrated Pest Management ? List any four aims of IPM. [5]

#### Question 8.

- (a) What is sustainable development ? Discuss any three strategies by which developing countries can achieve sustainable growth. [5]
- (b) Write any five effects of climate change on the global environment. [5]

#### Question 9.

- (a) Community participation plays an important role in conserving our environment. Justify this statement with suitable reasons. [5]
- (b) Give any five reasons as to why organic fertilizers are preferred over chemical fertilizers. [5]

#### Question 10.

- (a) Suggest five measures to help increase development in villages and thus reduce rural migration to cities. [5]
- (b) What is overgrazing ? State any four ill effects of overgrazing in forests. [5]

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) Secondary city is the second level in the hierarchy of cities below the primary level. A secondary city is largely determined by population, size, function, and economic status.

- (b) Zoning is a strategy that focuses on identifying zones or areas such as residential, agricultural, forest, commercial and industrial. It is beneficial in reducing the air pollution.
- (c) Tree crops are groves or orchards of trees that are grown for either an economic or environmental benefit. The most common tree crops produce fruit



or nuts. However, tree crops can also be grown for timber production or speciality reasons.

- (d) Disadvantages of mixed cropping are :
1. It is difficult to find the right combination of crops. All crops cannot be grown in mixed farming practices. Crops for mixed farming, if not chosen properly, have chances of competition between the crops for nutrients.
  2. It may reduce the fertility of the soil as more than one crop are grown at a time in the same piece of land.
- (e) Two advantages of using public transport system are :
1. Conserves fuel.
  2. Reduces air pollution.

#### Answer 2.

- (a) A Genetically Modified Organism (GMO) is any organism whose genetic material has been altered using genetic engineering techniques. A GMO (Genetically Modified Organism) is the result of a laboratory process where genes from the DNA of one species are extracted and artificially forced into the genes of an unrelated plant or animal.
- (b) Strategies to promote women centric development are :
1. Encouraging women to attain education and providing fair employment opportunities to them.
  2. Arranging skill development programmes for uneducated or less educated women.
- (c) Advantages of crop rotation are :
1. It helps in reducing soil erosion and increases soil fertility and crop yield.
  2. Crop rotation mitigates the build-up of pathogens and pests which further become indigenous to that particular soil.
- (d) Nuclear energy is the energy harnessed during nuclear fission or fusion.  
**Use:** Nuclear energy is used to generate electricity.
- (e) Global food security is when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. Its aim is to end hunger in the world.

#### Answer 3.

- (a) The features of National Park are:
1. A national park is a park made to protect the animals that live inside them which is officially recognised, maintained and monitored by a nation's government.
  2. Activities like cultivation, forestry, hunting, etc. are strictly prohibited in national parks.
- (b) Examples of non-biodegradable material are plastic, synthetic rubber, metals etc.

(c) International trade is the exchange of capital, goods, and services across international borders or territories.

- (d) Benefits of recycling paper are :
1. It reduces deforestation or felling of trees and is cheaper than the fresh paper.
  2. It reduces other environmental hazards like pollution and global warming.
- (e) The Montreal Protocol is an international treaty which was designed to protect the ozone layer by banning the production and use of numerous substances that are responsible for ozone depletion.

#### Answer 4.

- (a) Alternative technology refers to technologies that are more environment friendly than the ones in current practice. For example, renewable energy sources, such as wind turbines, solar panels, or bio-gas created from sewage can be used instead of conventional fossil fuels.
- (b) Composting is a form of waste disposal where organic waste decomposes naturally under oxygen-rich conditions. Organic wastes may include manure from livestock operations, animal breeding, yard wastes such as leaves and grass clippings and even kitchen scraps.
- (c) Two fuels that can reduce the air pollution due to domestic cooking are Liquid Petroleum Gas (LPG) and electricity since they do not cause pollution. Solar cookers can also be used.
- (d) 1. The decision to limit family largely depends on a couple's cultural background and education. The idea of limiting family size is counteracted by many cultural attitudes. Such attitudes will change if people are educated.  
2. Through education people should be made aware as to how they themselves and whole human race will be affected with such an enormous growing population and how the quality of life will be much better with less population.
- (e) Advantages of using the CNG as fuel are:
1. It is less polluting.
  2. It is easy to transport and is economical.

### SECTION-B

#### Answer 5.

- (a) Following measures can be implemented to curb air pollution from vehicles:
1. **Catalytic converters** : It is an exhaust emission control device that converts toxic gases and pollutants in exhaust gas from an internal combustion engine to less toxic pollutants by catalysing a redox reaction. Installation of catalytic converters can reduce the release of pollutants into the air.
  2. **Four stroke engines** : Four stroke engines facilitate complete combustion of fuel, hence less pollutants are generated.



3. Alternative sources of energy like electricity, solar, LPG etc., should be used as fuels to run the vehicles. These sources of energy are less polluting.

4. Actions have to be taken to control the rate of traffic growth. Public awareness and participation in traffic management is a must. Every citizen is equally responsible and accountable for traffic management along with the government.

5. Using public transports or car-pooling whenever possible can considerably help in reducing pollution. Engines of vehicles can be switched off when we are waiting at the traffic signal. Vehicles should be properly maintained. Since ill maintained vehicles emit lots of pollutants.

(b) Any solid material that is considered unwanted is said to be solid waste. Solid waste is generated through different means like residential, industrial or commercial activities.

Four ways to minimise the waste production in our surroundings are :

1. **Avoid** : Avoid using certain materials which are difficult to get rid off. For example, paper or jute bags can be used instead of plastic bags.

2. **Reduce** : Plan your purchase or procurement of materials so that the wastage is minimised.

3. **Reuse** : Some of the waste, before landing up as a landfill, can also be reused. For example, glass storage containers can also be used for storing materials.

4. **Recycle** : Instead of tossing every single used item in a trash bin, we can also use some of them again. Articles like plastic or glass bottle, paper, cardboard can be reprocessed and made into something useful.

**Answer 6.**

(a) Ecological importance of biodiversity are:

1. Biodiversity is essential for the smooth functioning of cycles of ecosystems.

2. Amazon forest is estimated to produce 20 per cent of total Oxygen produced in the Earth through the process of photosynthesis.

3. Pollination is another service, ecosystems provide through pollinators like insects, birds, animals, wind, etc. It is very difficult to accomplish these processes artificially or without intervention of nature.

4. Wide number of variety of trees maintains the air, water and soil quality.

5. Biodiversity is essential for proper propagation of food chains and food webs.

(b) **Advantages of using solar energy are :**

1. Renewable and inexhaustible source of energy.

2. It is a clean source of energy and does not emit any pollutant into the atmosphere, soil or water.

3. It reduces the dependence on the fossil fuels.

**Disadvantages of using solar energy are :**

1. Solar panels occupy a lot of space.

2. Efficiency and yield of electricity produced is less than that of fossil fuels.

**Answer 7.**

(a) Multi National Companies (MNC) must follow these strategies to curb pollution :

1. Industries must have devices for removal of potential pollutants before the industrial waste is let out to the environment like scrubbers, closed-collection recovery systems, dry and wet collectors, filters and electrostatic precipitators.

2. Use of eco-friendly and renewable source of energy like wind energy, biomass, solar energy, etc. should be encouraged and care should be taken that industries and factories are not built and run in the vicinity of residential, agricultural and forest areas.

3. The raw materials that cause pollution should be replaced by eco-friendly, non-polluting or less polluting materials. MNCs should ensure that state and national pollution control rules and regulations are complied.

(b) IPM includes all the pest control techniques by integrating appropriate measures that discourage the development of pest populations and keep pesticides and other interventions to levels that are economically justified and reduce or minimise risks to human health and the environment.

**The objectives of IPM are :**

1. To keep the pest numbers below Economic Threshold Level (ETL) instead of their eradication.

2. To protect and conserve the environment including biodiversity.

3. To make plant protection feasible, safe and economical for the farmers.

4. To ensure that harvests are sufficient and of good quality to adequately nourish the farm families and other consumers who depend on them.

**Answer 8.**

(a) Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Strategies by which developing countries can achieve sustainable growth are:

1. NGOs have played important roles in bringing about a change in the system, laws and regulations. NGOs have many programs, functions and roles which assist community to become empowered, and eventually attain sustainable development. Non-Governmental Organisations (NGOs) are engaged in multi-dimensional efforts that have been acknowledged globally in a number of development sectors, i.e. education, health,

poverty, environment etc. NGOs, through capacity building, develop community capacities such as ability, skill and knowledge of mobilising resources, planning and evaluating community initiation and solving problems to gain the mastery over their lives.

2. Replacing better technologies and practices with the current ones is essential to ensure sustainable development. Opting for alternative technology is a good step towards building a sustainable society. Renewable energy sources, such as wind turbines, solar panels, or bio-gas created from sewage can be used instead of fossil fuels. This step reduces pollution as well conserves natural resources.

3. Sustainable architecture encompasses all phases of building including the planning, building, and restructuring. Construction of Zero Energy Buildings, installation of green roofs is some of the sustainable architecture strategies.

(b) Effects of climate change on the global environment are :

1. Droughts everywhere are projected to become more intense.
2. The intensity, frequency and duration of hurricanes are increasing.
3. Due to increase in temperature, polar ice caps are melting leading to floods in low lying areas.
4. Due to disturbed climatic conditions, many plant and animal species are declining. This is affecting biodiversity.
5. Bio-geochemical cycles, food chains and food webs are also affected because of climate change.

**Answer 9.**

(a) In Community forestry the local community plays a significant role in forest management and land use decision-making by themselves in the facilitating support of government as well as change agents. It involves the participation and collaboration of various participants including community, government and Non-Government Organisations (NGOs). Social forestry is the management and protection of forest and afforestation of barren and deforested lands with the purpose of helping environmental, social and rural development. These innovative methods of forestry have lot of benefits. Involvement of local people makes such programmes successful. Community participation calls for the local community to actively plan, implement and manage the local environmental programme. It recognises the role of the government and the community in managing the environment and assigns the responsibility to both. The community voluntarily helps with resource, knowledge and skill. The community can keep environmental issues in mind while taking any decisions. They

call for clear commitment and involvement of all members of a community in various joint management.

(b) Organic fertilizers are preferred over chemical fertilizer because :

1. They enhance the water holding capacity of the soil.
2. Organic fertilizers make the soil porous due to which exchange of gases becomes easy.
3. Organic fertilizers increase the number of friendly microbes.
4. It improves the texture of the soil.
5. Organic fertilizers are easily made in fields.

**Answer 10.**

(a) Following measures can be taken to increase the development in villages and to prevent migration to cities are :

1. Every village in our country should be provided with basic amenities like clean drinking water, irrigation facilities for crops, uninterrupted power supply, modern communication network and internet access.
2. There are no colleges and higher education facilities in many of the villages. The schools in village lack basic amenities. Quality educational institutes should come up in village areas.
3. Clinics, dispensaries and hospitals in rural areas are not well equipped to treat all types of diseases. Sound hospitals with qualified medical professionals should come up in villages, so that, there is no need for villagers to visit or relocate to cities for treatment.
4. Rural areas should be provided with good public transport facilities.
5. Most jobs in rural areas are agriculture related or dependent on agriculture. They often tend to be seasonal and therefore unreliable.

(b) Overgrazing refers to the excessive grazing by animals which causes damage to grassland.

The consequences of forest overgrazing are as follows :

1. **Soil erosion:** Over grazing leads to soil erosion. The nutritious top soil is washed away, making the soil less nutritious.
2. **Soil degradation:** Soil erosion leads to depletion of soil quality. The fertility of soil is affected.
3. **Loss of species:** Overgrazing leads to speedy depletion of forest plants. The time taken to replenish these plants is much slower than the depletion speed. The microbes, forest animals or insects dependant on such plant will be affected.
4. **Imbalance in forest ecosystem:** Overgrazing leads to depletion of forest plants which eventually affects the forest food chain and food web. Thus, the forest ecosystem is disturbed.



# ENVIRONMENTAL SCIENCE

# 2018

## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions from this Section.

#### Question 1.

- (a) What is biogas ? State any one advantages of using biogas. [2]
- (b) Give the full form of CITES. [2]
- (c) Define silviculture. [2]
- (d) How is waste water useful to mankind ? [2]
- (e) List any two factors responsible for population growth. [2]

#### Question 2.

- (a) What is vermiculture ? State any one benefit of vermiculture to a farmer. [2]
- (b) Give one advantage and one disadvantage of using sewage sludge in agriculture. [2]
- (c) Mention any two manmade factors that have led to loss of biodiversity. [2]
- (d) How does GEF complement of Montreal Protocol ? [2]
- (e) Name the Multi National Corporation that was responsible for the Bhopal Gas Tragedy. Name the gas that was leaked. [2]

#### Question 3.

- (a) State any two ways as to how women play an important role in protecting the environment. [2]
- (b) Name any two wet land sites in India protected under Ramsar Convention (1971). [2]
- (c) Give two examples of any material containing natural cellulose fiber (other than wood), for the production of paper. [2]
- (d) How has trade helped to reduce global inequality ? [2]
- (e) Mention any two benefits of Green Manure. [2]

#### Question 3.

- (a) State any two measures taken to control industrial pollution in and around the Taj Trapezium. [2]
- (b) Mention any two ways by which small scale industries help to reduce poverty. [2]
- (c) What do you understand by Gene banks ? [2]
- (d) How is community participation an important part of every society ? [2]

- (e) List two conditions put forward by the government of developing countries to MNCs that should be fulfilled before entering into the markets. [2]

### SECTION-B (40 Marks)

Attempt **any four** questions from this Section.

#### Question 5.

- (a) What do you understand by ex-situ conservation of biodiversity ? Give two advantages and two disadvantages of ex-situ conservation. [5]
- (b) Define waste management. Why is segregation of waste important before disposal ? [5]

#### Question 6.

- (a) What is hydropower ? State any two advantages and any two disadvantages of hydropower. [5]
- (b) State five measures that can be taken to encourage people to move to satellite cities. [5]

#### Question 7.

- (a) What is baranaja ? List four benefits of this agricultural practice. [5]
- (b) Explain the farming techniques used to reduce soil erosion. [5]

#### Question 8.

- (a) State five aims of the Wildlife Protection Act of 1972. [5]
- (b) What do you understand by land reforms ? List four measures enforced by the Government of India to give land to the landless. [5]

#### Question 9.

- (a) What is traffic management ? What measures has the traffic management department taken to save fuel and reduce emission ? [5]
- (b) State measures that could be taken to use land efficiently and improve the urban environment. [5]

#### Question 10.

- (a) What are the trade restrictions imposed by developed countries on the developing countries ? [5]
- (b) How does biotechnology play an important role in achieving global food security ? [5]



## ANSWERS

## SECTION-A

## Answer 1.

- (a) Biogas is the mixture of gases that are produced by the breakdown of organic matter. It is produced by anaerobic digestion (fermentation) by the micro-organisms. The advantage of biogas is that, it is renewable source of energy.
- (b) CITES—Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- (c) Silviculture is defined as the practice of controlling the establishment, growth, composition, health and quality of forests to meet diverse needs and values.
- (d) The uses of waste water are :
  1. The sludge obtained from the waste water can be used as the manure for increasing the fertility of the soil.
  2. Anaerobic microbial digestion of sludge can be used to produce energy.
- (e) Factors responsible for population growth are :
  1. Lack of access to birth control measures.
  2. Lack of awareness and education amongst people regarding ill effects of population explosion.

## Answer 2.

- (a) Vermiculture means artificial rearing or cultivation of worms, especially earthworms for decomposing biodegradable substances. The compost made by worms is called as vermicompost. Vermicompost is an excellent organic fertilizer and improves the soil texture. It does not involve elaborate procedures and high cost.
- (b) Sewage sludge is rich in organic matter and therefore can serve as a manure to improve soil fertility. However, sewage sludge is said to contain considerable amounts of harmful substances like hydrocarbons, heavy metals, dioxins, aromatic compounds, etc. Some of these chemicals may get absorbed by the plants and these chemicals get incorporated in the food chain.
- (c) The two manmade factors responsible for the loss of biodiversity are :
  1. Overexploitation of resources
  2. Habitat destruction of species
- (d) The Montreal Protocol is an international treaty designed to protect ozone layer by prohibiting the use of various substances that cause ozone layer depletion. The GEF aims at combating

environmental issues like loss of biodiversity, climate change, pollution, international waters, land degradation, ozone depletion and forest management. The complementing factor between the GEF and the Montreal Protocol is the working for protecting the ozone layer.

- (e) The MNC responsible for the Bhopal gas tragedy was Union Carbide India Limited where the Methyl isocyanate gas was leaked.

## Answer 3.

- (a) The role of women in protecting the environment is as follows :
  1. Women manage natural resources daily in their roles as farmers, domestic workers and household providers. They often have unique knowledge of local crop species.
  2. To meet family needs, rural women and girls walk long distances to fetch fuel, wood and water. Therefore, they are aware about availability of natural resources and are accountable for judicious use of the same.
- (b) **The wetlands in India protected under Ramsar Convention are :**
  1. Ashtamudi wetland in Kerala.
  2. Bhoj wetland in Madhya Pradesh.
- (c) 1. Bagasse                      2. Rice husk
- (d) Trade has enabled social mobility within the nations. Transparent and safe trade policies enable nations to progress economically. International and national efforts to create progressive tax regimes and deal with tax avoidance and tax havens, the extension of democracy into economic institutions can have a major impact in reducing inequality.
- (e) Two benefits of Green manure are :
  1. Green manure gives rise to humus which makes the soil slightly acidic. Therefore, green manure can be added to the alkaline soil to neutralise it.
  2. Legumes are also a part of green manure which have nitrogen fixing bacteria in their root nodules. These bacteria fix atmospheric nitrogen into nitrates and nitrites which are passed on to the soil.

## Answer 4.

- (a) The following measures were taken to control the pollution in and around the Taj Trapezium :
  1. Creation of a green buffer zone around the Taj to reduce pollution.



2. All surrounding coal based industries were recommended to use the natural gas as the alternate fuel.

- (b) 1. Small scale industries provide employment for artisans, labours, women engaged in traditional arts and activities, etc. Hence, it provides employment opportunities to a large number of people. Thus, it reduces the unemployment problem to a great extent.
2. Products produced in small scale industries are sold and exported in other countries. Thus, these entrepreneurs get exposure and access to foreign exchange.
- (c) Gene banks are reservoirs or store houses which preserve genetic materials of useful plants, animals and microbe species under suitable conditions.
- (d) Community participation is important in social development and upliftment of the society. Involvement and participation of more people gives various perspectives and suggestions to the issue. Community members can give new information by using the expertise each member has. When the community is involved in a project, they have ownership of it. These factors make decision making and the development easier and less complex.
- (e) 1. To take certain responsibilities toward society and unprivileged class of people. The companies in collaboration with government and NGOs put their efforts to uplift the unprivileged people.
2. To ensure the operations and functioning of the company in a way that is least harming to the environment and the society.

### SECTION-B

**Answer 5.**

- (a) **Ex-situ conservation :** Ex-situ conservation is the conservation and preservation of endangered species outside their natural habitat. In this approach, threatened animals and plants are taken out from their natural habitat and placed in special setting where they can be protected and given special care.

**Advantages of ex-situ conservation :**

1. Ex-situ conservation gives a longer life span to the animals, as chances of their survival increases under human care.
2. Animals can be given proper medical assistance and nutrition as required.

**Disadvantages of ex-situ conservation :**

1. This set-up can be expensive to maintain.

2. As the animals are taken out of their habitat, some natural selection phenomena like evolution is limited.

- (b) Waste management or waste disposal includes the activities and actions required to manage waste from its inception to its final disposal. The activities include collection, transport, treatment and disposal of waste. There are various types of waste, which has to be handled in a different way.

**Segregation of waste is important because :**

1. Some waste also contains harmful or hazardous materials which should not get mixed with soil, water or air.
2. Segregation protects health. When ragpickers put their hands into the waste, it results in cuts that further leads to infections resulting in deterioration of ragpicker's health. Hence, it becomes our responsibility to help these ragpickers by carefully segregating the waste.
3. When the waste is not separated properly, it leads to less recycling because it is not easy to remove materials for recycling. This means many resources are wasted.

**Answer 6.**

- (a) Hydropower is the energy derived from the running water. This energy is harnessed for various reasons.

**Advantages of hydropower :**

1. It is a clean and non-polluting source of energy.
2. It is renewable source of energy.

**Disadvantages of hydropower :**

1. Hydropower set-up can affect the aquatic ecosystem.
  2. Many aquatic flora and fauna lose their habitat.
- (b) The following measures can be taken to encourage people to move to satellite cities :
1. Every satellite city in our country should be provided with basic amenities like clean drinking water, irrigation facilities for crops, uninterrupted power supply, modern communication network and internet access.
  2. Quality educational institutes should come up in these cities.
  3. Sound hospitals with qualified medical professionals should come up in satellite cities, so that, there is no need for these residents to visit to relocate to cities for treatment.
  4. Satellite cities should be provided with good public transport facilities.
  5. These cities should have job opportunities in various sectors. This will encourage people to relocate or retain their residency in the satellite city.

**Answer 7.**

(a) Baranaja is a traditional agricultural practice of growing at least twelve crops on the same land in the different seasons. The benefits of this agricultural practice include :

1. This system enhances immunity of crops.
2. This system helps maintain ecological balance and enables farmers to benefit from certain varieties, even if some crops are damaged.
3. When different types of plantation are done on the land, root systems of different plants reach different depths in the soil and capture nutrients and moisture efficiently and minimise the need for fertilizer and irrigation.
4. Since the field is always covered by the crops or plants, thus the soil erosion is significantly controlled.

(b) Farming techniques that reduces soil erosion are :

**1. Terrace farming :** It is an effective method to control erosion and surface run-off. The speed of the running or flowing water is also interrupted when it flows through steps.

The land is flattened on the steep slopes so that the farmers can use it for cultivation. The terraces ensures that the top soil stays in place and is not lost through natural gravity.

**2. Contour ploughing :** In contour ploughing, the land is ploughed perpendicular to the slopes and along the contour lines. The slopes length shortens which slows down the flow of water thus giving it enough time to soak into the soil. Contour ploughing not only controls soil erosion but also improves soil profile by creating a water break.

**3. Strip farming :** This method of farming involves cultivating a field partitioned into long, narrow strips which are alternated in a crop rotation system. The type of soil, steepness and length of the slope determines the width of strips.

**4. Dry farming :** In this method, the crops which do not have high water requirement are chosen. Dry farming, therefore, is a method of farming without irrigation. Seeds are planted in lower layers of the soil to help the germination process. Mulches are put on the soil to reduce evaporation.

**5. Wind breaks :** A wind break is a plantation usually made up of one or more rows of trees or shrubs planted in such a manner, so as to provide shelter from the wind and to protect soil from erosion. They are commonly planted in hedgerows around the edges of field on farms.

**Answer 8.**

(a) The aims of Wildlife Protection Act of 1972 are :

1. Prohibition on hunting of specified wild animals and birds.
2. Prohibition on exploitation of specified wild plant species.
3. Setting up and management of national parks and wildlife sanctuaries.
4. Control of trade and commerce of wildlife and its products.
5. Maintenance of data and records of wildlife being exploited, so that effective consequences can be levied or measures can be taken.

(b) Land reform is a policy that aimed at ensuring social justice and harmony. Land reform involves the changing of laws, regulations or customs regarding land ownership. Land reforms support unbiased development of all classes of people who are practicing agriculture. The measures taken by the Indian government to give land to the landless are :

1. Abolition of the intermediaries zamindars, who do the trading of the products grown by the labourers or peasants.
2. Land ceiling is one of the measures to take away the surplus land from those who cross the limit of land possession beyond a certain point.
3. Tenancy regulation was done to improve the contractual terms including security of occupancy.
4. Attempts to merge unequal landholdings were made and clear documentation showing the ownership of land was made mandatory.

**Answer 9.**

(a) Traffic management is the direction, control and supervision of all functions incident to the procurement and use of freight and passenger transportation services.

Measures taken by traffic management department to save fuel and reduce emission are :

1. Public transport facilities like buses, trains, ferries are set up in cities to avoid traffic congestion.
2. Car pooling and scooter pooling is being encouraged.
3. Every mall, apartment and building are required to have a well defined parking area in their construction plan.
4. Traffic signals are set up at intersections to facilitate smooth passage of vehicles.

(b) Following are the measures that could be taken to use land efficiently :

1. **Zoning** : Areas of land should be divided by appropriate authorities into zones within which various uses are permitted.

2. **Geographical mapping** : It is important to understand the surrounding and characteristics of the city before the land is being used. Types of soil, availability of natural water resources, presence of agricultural lands in the vicinity, etc., should be known and mapped.

3. It should be made mandatory for all the buildings (apartments, hospitals, shopping malls, theatres, etc.) to have a parking space, so that people do not park their vehicles on roads, thus reducing congestion on roads.

4. Environmental protocols should be strictly adhered. The construction of only green buildings or eco-friendly buildings should be permitted.

5. Resources planning (food, water and energy) should be efficiently done. The infrastructure of the city should be equipped to support conservation methods of these resources. For example, every apartment should have rainwater harvesting infrastructure, residents should be encouraged to use solar energy etc.

**Answer 10.**

- (a) The developed nations have exploited a huge amount of natural resources in the process of achieving the current economic and technological status. As the development progressed, rich countries got even richer while poor nations did not show much progress. Developing countries

were not equal players in the competitive trade game and had been weakened by the discriminatory international trading policies that kept the prices of commodities low. There were no mechanisms to stabilise the commodity price which became one of the major reasons for the fall in the trade and export earnings of most of the developing countries. The poorer the country, the higher is its tariff and the trade barriers. High import costs weaken the productivity and exports. The least developed countries often produce goods like textiles and agricultural products to which high tariffs are levied. The factors like legal uncertainties, high import costs and access to a position in the international markets are the major constraints.

- (b) The role of biotechnology in achieving food security is :

1. Increase in the crops yield by introducing high-yielding varieties of crops.
2. The crops are resistant to biotic and abiotic stresses like diseases, pests, withering etc.
3. Reduces crop loss due to pest invasion.
4. The nutritional values of foods can be increased.
5. Biotechnological methods are sustainable methods which aim at optimum and planned usage and reduced wastage of resources. All such innovations through biotechnology in the field of agriculture helps to attain global food security.



GURUKUL

# ENVIRONMENTAL SCIENCE

# 2017

## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions from this Section.

#### Question 1.

- (a) What is smog ? State any one ill effect of it. [2]
- (b) How is micro irrigation beneficial to us ? [2]
- (c) Discuss any two ways of combating deforestation. [2]
- (d) Name any two agreements of environment protection at global level. [2]
- (e) State any two advantages of planning the use of land. [2]

#### Question 2.

- (a) What is regenerative farming ? [2]
- (b) List any two ways by which electricity can be generated without the use of fossil fuel. [2]
- (c) How has slowing down of economic growth created hardship for the urban poor ? [2]
- (d) Name any two NGOs that have helped in building a global network. [2]
- (e) What is Vana mahotsava ? When was it launched ? [2]

#### Question 3.

- (a) How are wetlands important to us ? [2]
- (b) Name the three R's and explain any one. [2]
- (c) What is nuclear fission ? Give one advantage of nuclear fission over nuclear fusion ? [2]
- (d) List any two benefits of an MNC that influences the growth of developing nations. [2]
- (e) Define carrying capacity of the planet. [2]

#### Question 4.

- (a) List any two principles of Sustainable Development. [2]
- (b) How does environment play an important role in wildlife management ? [2]
- (c) Mention any two advantages of growing trees along road sides. [2]
- (d) Define clean fuel. Give an example. [2]

- (e) Who launched 'Swachh Bharat Abhiyan' ? How will it benefit the rural poor ? [2]

### SECTION-B (40 Marks)

Attempt **any four** questions from this Section.

#### Question 5.

- (a) Discuss any five ways of reducing air pollution caused by industries. [5]
- (b) "Environmental resources are put under great stress in order to achieve the objectives of economic development." Explain. [5]

#### Question 6.

- (a) "Overgrazing is a menace." Give three impacts of overgrazing and two measures to control the menace. [5]
- (b) Mention the problems associated with disposal of waste in landfills. Suggest two alternatives that can reduce the burden on these landfills. [5]

#### Question 7.

- (a) What are HYVs ? State any two advantages and two disadvantages of HYVs. [5]
- (b) Discuss the application of Remote Sensing Satellite in the collection of environmental data. [5]

#### Question 8.

- (a) What is the ecological impact of population growth ? [5]
- (b) Explain five methods of achieving sustainable agriculture. [5]

#### Question 9.

- (a) What is energy conservation ? Explain any four reasons for conserving energy. [5]
- (b) What are Green buildings ? Explain any four features of Green buildings. [5]

#### Question 10.

- (a) How can mass public transport with high capacity and low pollution be encouraged ? [5]
- (b) Differentiate between wildlife and biodiversity. What are their advantages ? [5]

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) "Smog" is a mixture of pollutants but is primarily made up of ground-level ozone. Smog is usually

produced through a complex set of photochemical reactions involving volatile organic compounds (VOC's) and nitrogen oxides in the presence of sunlight that result in the production of ozone. Ill effect of Smog results as health problems such as



difficulty in breathing, asthma, reduced resistance to lung infections, cold and eye irritation.

- (b) A low pressure irrigation system that sprays, mist, sprinkle or drip is called as Micro Irrigation System.

**Micro Irrigation has following advantages :**

1. **Water savings :** By reducing loss of water through evaporation, run off and by deep percolation.

2. **Energy savings :** This type of irrigation system requires a smaller power unit and consumes less energy.

3. **Weed and disease reduction :** This type of irrigation system is helpful in inhibiting growth of weeds as it keeps limited wet areas.

- (c) Deforestation involves the conversion of forested regions to non-forest land for the use of pastures for livestock, logging companies, industrial gain, urban use or simply to become a wasteland.

**Way of combating deforestation :**

1. **Use Recycled Items:** When recycled products are used in our day to day life. The demand of new raw material may be reduced. *e.g.*, Books, toilet paper etc.

2. **Reforestation:** Planting new trees and creating new forest are ideal solutions to prevent Deforestation.

- (d) 1. **Kyoto Protocol (1997) :** The Kyoto Protocol is an international treaty which extends the 1992 United Nations Framework Convention on Climate Change (UNFCCC) that commits State Parties to reduce greenhouse gas emissions, based on the premise that (a) global warming exists and (b) human-made CO<sub>2</sub> emissions have caused it.

2. **Paris Agreement on Climate Change, 2016 :** For the first time in more than 20 years of UN's climate negotiations, the COP21 accomplished a legally binding and universal agreement on climate the Paris Agreement.

- (e) As population and human aspirations increase, land becomes an increasingly scarce resource, calling for land-use planning. Land-use planning is important to mitigate the negative effects of land use and to enhance the efficient use of resources with minimal impact on future generations.

**Advantages of planning the use of land :**

1. Natural vegetation, such as forest cover, is usually the most benign of land uses, with higher infiltration and reduced runoff rates.

2. Agricultural activities are major forms of land use, including row crops, rangelands, animal farms, aquaculture and other agribusiness activities.

**Answer 2.**

- (a) Regenerative farming comprises an array of techniques that rebuild soil and in the process, sequester carbon. Typically, it uses cover crops and perennials so that bare soil is never exposed and grazes animals in ways that mimic animals in nature. It also offers ecological benefits far beyond carbon storage, it stops soil erosion, re-mineralises soil, protects the purity of groundwater and reduces damaging pesticide and fertilizer runoff.

- (b) Ways by which electricity can be generated without use of fossil fuel are :

1. **Hydropower plants :** Hydropower plants generate electricity by storing water in vast reservoirs behind massive dams. Water from the dams flows through turbines to generate electricity and then goes on to flow through rivers below the dam.

2. **Nuclear power plants :** Nuclear power plants use the heat produced by nuclear fission to generate steam that drives turbines, like in fossil fuel plants. However, no greenhouse gases are produced in this fission process and only small amounts are produced across the whole fuel cycle.

- (c) Slowing down of economic growth has created hardship for the urban poor in the following ways:

1. Limited access to employment opportunities and income.
2. Inadequate and insecure housing and services.
3. Violent and unhealthy environments.
4. Lesser or no social protection mechanisms.
5. Limited access to adequate health and education opportunities.

- (d) 1. **BRAC :** BRAC "is a development organization dedicated to alleviating poverty by empowering the poor to bring about change in their own lives." BRAC began in 1972 and has established itself as "a pioneer in recognizing and tackling the many different realities of poverty." BRAC came 4th on the 2012 list.

2. **Wikimedia Foundation :** The Wikimedia Foundation is "dedicated to encouraging the growth, development and distribution of free, multilingual content and to provide the full content of these wiki-based projects to the public free of charge.

- (e) Vana mahotsav is an annual pan-Indian tree planting festival, occupying a week in the month of July. During this event millions of trees are planted. In 1950 the Government of India began the annual festival of tree planting called the

Vana mahotsava. Gujarat was the first state to implement it. However, it was only in the 1970's that greater impetus was given to the conservation of India's forests and wildlife.

### Answer 3.

(a) Wetlands are important to us in the following ways:

**1. Water quality :** Wetlands improve water quality. As water moves into a wetland, the flow rate decreases, allowing particles to settle out. The many plant surfaces act as filters, absorbing solids and adding oxygen to the water. Growing plants remove nutrients and play a cleansing role that protects the downstream environments.

**2. Flood control :** Wetlands can also reduce the impacts of flooding, as they can absorb heavy rain and release water gradually. Downstream water flows and ground water levels are also maintained during periods of low rainfall. Wetlands help stabilise shorelines and riverbanks.

**3. Wildlife habitat :** Many wetland plants have specific environmental needs and are extremely vulnerable to change. Some of the endangered plant species depend totally on wetlands.

(b) The three R's of the environment are Reduce, Reuse and Recycle. They conserve natural resources, landfill space and energy.

#### Reduce :

1. Use electronic mail or main bulletin board.
2. Use cloth napkins instead of paper napkins.

#### Reuse :

1. Use resealable containers rather than plastic wrap.
2. Use a ceramic coffee mug instead of paper cups.

#### Recycle :

1. Buy products made from material that is collected for recycling in your community.
2. Use recycled paper for letterhead, copier paper and newsletters.

(c) Nuclear fission is the process in which a large nucleus splits into two smaller nuclei with the release of energy. In other words, fission is the process in which a nucleus is divided into two or more fragments and neutrons and energy are released.

The mass changes and associated energy changes in nuclear reactions are significant. For example, the energy released from the nuclear reaction of 1 kg of uranium is equivalent to the energy released during the combustion of about four billion kilograms of coal.

Advantage of nuclear fission over nuclear fusion is that extremely high levels of heat are necessary in order to fuse the two nuclei of the atoms together which are difficult.

(d) The word "Multinational" is a combined word of "Multi" and "National", which when combined refers to numerous countries. A Multinational Corporation is a corporation that has its facilities and other valuable assets in at least one country, which is other than its parent country.

1. MNCs help in developing host country by increasing investment, income and employment in its economy.

2. They contribute to the rapid process of development of the country through transfer of technology, finance and modern management.

(e) Carrying Capacity is the maximum population that the planet can sustain taking into consideration availability of food sources, water and all the other necessities to sustain life. Carrying capacity is the maximum number of a species an environment can support indefinitely. Every species has a carrying capacity, even humans. However, it is very difficult for ecologists to calculate human carrying capacity. Humans are a complex species. We do reproduce, consume resources, and interact with our living environment uniformly.

### Answer 4.

(a) The concept of "sustainable development", was coined by the World Commission on Environment and Development and with it, the term "sustainability" itself, has been gaining increasing recognition in recent years all around the world.

**1. The First Principle :** Principle of intra-generational and inter-generational solidarity. The interests of sustainable development are focused on people. The development and environmental needs of present generations must be addressed without compromising the ability of future generations to meet their own needs.

**2. The Second Principle :** The principle of social justice. The right to adequate conditions for living must be recognised and fundamental human rights must be guaranteed for all. All people should have equal opportunities for acquiring knowledge and skills required to become worthy members of society.

(b) Environmental change has negatively affected most biological systems on our planet and is becoming an increasing concern for the well-being and survival of many species. At an organism level, effects encompass not only

endocrine disruptions, sex-ratio changes and decreased reproductive parameters, but also include teratogenic and genotoxic effects, immunosuppression and other immune-system impairments that can lead directly to disease or increase the risk of acquiring disease.

(c) Advantages of growing trees along road sides are:

**1. Street trees cut traffic noise :** Street trees reduce the amount of engine noise created in the first place because drivers go more slowly. But a line of large leafy trees can also absorb a great deal of noise.

**2. Trees improve air quality :** Trees consume carbon dioxide and emit oxygen. In general, the more trees we plant, the better air we breathe.

(d) Sustainable Performance produces the world's most advanced and reliable emulsified fuels for the marine and power generation sectors. These fuels dramatically cut particulate matter and NO<sub>x</sub> (Nitrogen Oxides). Natural fuel (such as compressed natural gas or liquefied petroleum gas) or a blend (such as gasohol) used as a substitute for fossil fuels and which produces less pollution than the alternatives.

(e) The Swachh Bharat Abhiyan was officially launched on 2 October, 2014 at Rajghat, New Delhi, by Prime Minister Narendra Modi. The objectives of Swachh Bharat are to reduce or eliminate open defecation through construction of individual, cluster and community toilets.

**It will benefit the rural people in the following ways :**

1. Bring about an improvement in the general quality of life in the rural areas.
2. Develop community managed environmental sanitation systems focusing on solid and liquid waste management for overall cleanliness in the rural areas.

## SECTION-B

**Answer 5.**

(a) Nowadays environmental pollution has become a critical issue due to increased demand in products and development. Due to deforestation and industrialisation, air quality is constantly degrading year by year. Any type of air pollution has sources of industrial activities and is known as Industrial air pollution.

Industrial air pollution is major source of total environmental air pollution.

**Ways to Reduce Air Pollution from Factories :**

1. We can reduce air pollution by conserving energy by turning off lights, computers, air

conditioners and other appliances when not in use. Encourage your employees to use public transport or you can arrange a bus from a common point for your employees.

2. When purchasing a vehicle for your company consider buying most efficient, lowest polluting or if possible zero emission electric vehicle. Encourage employees to use bicycle for daily commute. Ensure drivers in your company to obey traffic laws, speed limits, maintaining vehicles properly and keeping optimum air pressure in tyres.

3. Replace lights in your factory to energy efficient bulbs. GO green by limiting the use of paper as it may save some trees. Choose materials which are made from recycled materials. Encourage teleconference than physical meeting. Encourage activities like planting trees once a year among employees. Give awards to employees who reduced emissions in their shifts.

4. Improve machineries and manufacturing processes to reduce emissions from factories. Boosting performance of boilers can sharply reduce air pollution from industry.

5. Earlier companies used electric motors with efficiencies 60-90 percentage, now electric motors with 95% of efficiency are also available. Proper maintenance of boiler e.g., blowing dust from surface, reducing excess air can reduce air pollution from industries.

(b) With economic development, populations no doubt are large in many countries and demands on resources are obviously large, it is only one of many other causes and some of those other issues such as over-consumption based, unsustainable development may have an even larger impact. Our choice of how to use those resources (*i.e.*, our economic policies) and for what purposes (*i.e.*, our political directions and policies) are critical issues as well on the resulting impact on the environment to meet those uses and purposes.

Existing consumption patterns as seen in Europe and North America can put strain on the environment and natural resources, which can have serious impacts on society.

Some suggest that the industrialised nations need to drastically change their consumption patterns that are currently seen, as this is depleting resources more than the demands from large populations as seen in many developing nations.

1. Take for example the United States. With around 5 percent of the world's population, the US consumes about 40% of the world's resources and emits around 21% of the world's



carbon dioxide, a greenhouse-causing gas. The United States, however, is not over-populated, but the consumption-based life style does have its effects.

2. That is not to say that there are no problems in developing countries. In India for example, Delhi is a good example of a growing city. However, with this development come serious growing pains, such as pollution and unsustainable resource management.

Junk-food chains, including KFC and Pizza Hut, are under attack from major environmental groups in the United States and other developed countries because of their environmental impact. Intensive breeding of livestock and poultry for such restaurants leads to deforestation, land degradation and contamination of water sources and other natural resources. For every pound of red meat, poultry, eggs and milk produced, farm fields lose about five pounds of irreplaceable top soil. The water is necessary for meat breeding comes to about 190 gallons per animal per day or ten times what a normal Indian family is supposed to use in one day, if it gets water at all.

#### Answer 6.

(a) "Overgrazing occurs when plants are exposed to intensive grazing for extended periods of time or without sufficient recovery periods. It can be caused by either livestock in poorly managed agricultural applications, game reserves or nature reserves. It can also be caused by immobile, travel restricted populations of native or non-native wild animals.

Following are the impacts of overgrazing :

**1. Land Degradation :** Overgrazing removes the vegetal cover over the soil and the exposed soil gets compacted due to which the operative soil depth declines. So the roots cannot go much deep into the soil and adequate soil moisture is not available. Organic recycling also declines in the ecosystem because not enough detritus or litter remains on the soil to be decomposed. The humus, content of the soil decreases and overgrazing leads to organically poor, dry, compacted soil.

Due to trampling by cattle the soil loses infiltration capacity, which reduces percolation of water into the soil and as a result of this more water gets lost from the ecosystem along with surface run off. Thus overgrazing leads to multiple actions resulting in loss of soil structure, hydraulic conductivity and soil fertility.

**2. Soil Erosion :** Due to overgrazing by cattle, the cover of vegetation almost gets removed from the land. The soil becomes exposed and gets eroded

by the action of strong wind, rainfall etc. The grass roots are very good binders of soil. When the grasses are removed, the soil becomes loose and susceptible to the action of wind and water.

**3. Loss of Useful Species :** Overgrazing adversely affects the composition of plant population and their regeneration capacity. The original grassland consists of good quality grasses and herbs with high nutritive value.

#### Measures to control the menace :

**1. Proper management of animals :** As much as overgrazing is associated with the number of animals, it is more about the management of the animals. There are several methods of grazing management to choose from that can offer effective solutions to overgrazing. Examples are rotational, cell and mob grazing.

**2. Land use management :** Land use management involves the proper assessment of various land uses and the implications of human activities on land. Local and regional factors such as aridity and rainfall patterns also have to be considered before any land development or exploitation implementations are undertaken.

(b) The two main environmental problems we face as a result of landfills are :

**1. Air Pollution-Emissions into Atmosphere:** Landfills create a clear and obvious threat to human health as well as a threat to our environment from the hazardous contaminated air emissions emitted from the landfill biodegradation. There are over ten toxic gases released from landfills, of the most serious of which is methane. Methane gas is naturally produced during the process of decay of organic matter. As methane gas is formed, it builds up pressure and then begins to move through the soil. Methane is a more potent greenhouse gas than carbon dioxide.

**2. Ground Water Pollution-Emissions into Water :** The key environmental problem we face as a result of landfills is groundwater pollution from leachates (the liquid that drains or 'leaches' from a landfill). The major issue caused with landfill leachates is the leakage of a large number of toxins into fresh water waterways, which ultimately end up in our homes as drinking water or water for everyday use.

#### Solutions of Landfills :

**1. Design and implementation of integrated waste management :** The construction of modern landfills with well-engineered and managed disposal facilities can significantly lessen the impacts of landfill on soil, air and water.



**2. Recycle and Reuse :**

(a) **Reuse products:** Reusing the products that we have already bought keeps them away from the landfill. We can buy used items from internet sites like E-bay, second-hand stores, garage sales or otherwise donate the items that we do not use.

(b) **Recycle materials:** Recycling is one of the best solutions for landfill management. Materials such as plastics, cans, paper and glass can be recycled.

**Answer 7.**

- (a) High Yielding Varieties Seeds (HYV) are undoubtedly land substituting, water economising, more labour using and employment generating innovation; nevertheless, they are very delicate and sensitive and therefore require a great deal of care if a successful harvest is to be obtained.

**Advantages of High Yielding Variety Seeds over Traditional Varieties of Seeds are as follows :**

1. High Yielding Variety Seed (HYV) has shorter lifecycle and thereby enables the farmers to go for multiple cropping. For example, new seeds of rice and wheat complete their lifecycles in 110 and 120 days respectively. The traditional varieties of rice and wheat, on the other hand, take about 130 and 150 days respectively to harvest. The new seeds thus enable the farmers to economise land.

2. High Yielding Variety Seeds (HYV) need a lot of water for better yields. The yield per unit area is significantly high. If it is considered in terms of water required per quintal of wheat or rice, the new seeds require less water as compared to that of the traditional varieties. HYV thus economise on water also as the crop remains in the field for a shorter period.

**Disadvantages :**

1. HYV crops need a lot of fertilisers and pesticides to grow which increases costs and pollution.

2. The high yielding varieties of crops are generally more susceptible to diseases than the traditional varieties.

- (b) **Remote Sensing Satellite :** Remote Sensing Satellite is defined as the use of satellite sensors to observe and record the electromagnetic radiation reflected or emitted by earth and its environment for gathering the information.

**Applications :**

1. **Geology and Mineral Exploitation :** The use of these satellites can explore the mineral contents under the ground level for the usage of mankind.

2. **Oceanography :** The use of these satellites is widely utilised for the study of oceans and their unexplored phenomenon such as

marine organisms, submerged rocks and other information.

3. **Environmental Monitoring :** The use of these satellites helps the mankind to analyse the environmental impacts, changes and the disasters and to study them in detail. These are also used to alert people against environmental disasters.

4. **Land Degradation :** One of the most important issues in the current scenario is the land degradation. There are several causes for land degradation. Satellites however help us to analyse the land reforms and the degradation caused by pollution and human waste.

5. **Agriculture and Forestry :** The satellites help us to a great extent in the study of agriculture and forest resources. It helps in analysing the agricultural land and water resources required for the farming purposes. They also help us to analyse the deforestation and help us to maintain the forest resources by collecting the data.

**Answer 8.**

- (a) **Effects of Population Growth on our Environment :**

One of the factors responsible for environment degradation is population growth or population density. In particular, population density plays the most important role in shaping the socioeconomic environment. Its effects are felt on the natural environment also.

1. **Generation of Waste :** Due to his destructive activities, man has dumped more and more waste in environment. As the man-made waste is not transformed, it causes degradation and the capacity of environment to absorb more waste is reduced. Further, waste leads to air and water pollution.

2. **Threat to Biodiversity :** Due to his destructive activities, man has extracted more and more minerals from the earth. Animals have been hunted and plants have disappeared. There has been loss of biodiversity. These have led to ecological imbalance.

3. **Strain on Forests :** Man has established new housing colonies. National highways and hydropower projects have been built and forests have been wiped out. These destructive activities have increased and led to ecological imbalance.

4. **Urbanisation :** Rapid growth of population has led to urbanisation which has adversely affected environment. Due to population pressure, natural resources in the cities are depleted at a fast rate due to population pressure.

5. **Industrialisation :** Underdeveloped countries are following the policy of heavy industrialisation

which is causing environmental degradation. The establishment of such industries as fertilizers, iron and steel, chemicals and refineries has led to land, air and water pollution.

- (b) Sustainable agriculture provides high yields without undermining the natural systems and resources that productivity depends on. Below are some of the most common sustainable agriculture techniques employed by farmers today to achieve the key goals of weed control, pest control, disease control, erosion control and high soil quality :

1. Crop Rotation      2. Cover Crops
3. Soil Enrichment    4. Natural Pest Predators
5. Bio-intensive Integrated Pest Management

**1. Crop Rotation :** Crop rotation is growing different crops in succession in the same field and is one of the most powerful techniques of sustainable agriculture and avoids the unintended consequences of putting the same plants in the same soil year after year.

**2. Cover Crops :** Many farmers also take advantage of the benefits of having plants growing in the soil at all times, rather than leaving the ground bare between cropping periods, which produces unintended problems. The planting of cover crops such as hairy vetch, clover or oats helps farmers achieve the basic goals of :

- (a) Preventing soil erosion
- (b) Suppressing weeds
- (c) Enhancing soil quality

**3. Soil Enrichment :** Soil is arguably the single most prized element of agricultural ecosystem. Healthy soil teems with life, including many beneficial microbes and insects, but these are often killed off by the overuse of pesticides. Soil quality can be maintained and enhanced in many ways, including leaving crop residues in the field after harvest, plowing under cover crops or adding composted plant material or animal manure.

**4. Natural Pest Predators :** Understanding a farm as an ecosystem rather than a factory offers exciting opportunities for effective pest control. For example, many birds, insects and spiders are natural predators of agricultural pests.

**5. Bio-intensive Integrated Pest Management:** One of the most promising technologies is the control of pests through Integrated Pest Management (IPM). This approach relies to the greatest possible extent on biological rather than chemical measures and emphasises the prevention of pest problems with crop rotation; the reintroduction of natural, disease-fighting microbes into plants or soil, and release of beneficial organisms that prey on the pests.

#### Answer 9.

- (a) Energy from the sun powers the world's ecological communities. Solar energy is channeled into an ecological community by way of photosynthesis in green plants and many other photosynthetic microorganisms. Energy harvested by photosynthesis is used to produce plant tissue where light energy is saved as chemical energy. This chemical energy is transferred when plants are eaten by herbivores (plant-eating animals). Energy stored in herbivores can further be transferred to carnivores (animal-eating animals). This sequence of energy transfer from plants to herbivores and then carnivores is called a food chain. Along the food chain, the number of transfers for the solar energy to reach an organism defines its trophic level. Plants therefore occupy the first trophic level, herbivores the second trophic level and herbivore-eating carnivores the third trophic level. A species population can occupy more than one trophic level depending on the source of energy actually assimilated.

#### Reasons for conserving energy :

**1. We use energy faster than it can be produced:** Coal, oil and natural gas, the most utilised sources take thousands of years for formation.

**2. Energy resources are limited :** India has approximately 1% of world's energy resources but it has 16% of world population.

**3. Most of the energy sources we use cannot be reused and renewed :** Non-renewable energy sources constitute 80% of the fuel use. It is said that our energy resources may last only for another 40 years or so.

- (b) Green building, is the practice of increasing the efficiency with which buildings and their sites use energy, water, materials and reducing impacts on human health for the entire lifecycle of a building. Green building concepts extend beyond the walls of buildings and include site planning, community and land-use planning issues as well. Green building refers to the incorporation of environment friendly and resource efficient processes at each stage of construction, right from site selection and designing to construction, operation followed by maintenance, renovation or even demolition.

#### Features of Green buildings :

**1. Air tightness and vapour barrier in building walls and surfaces :** Walls that are able to keep out moisture and humidity from outside will make the building naturally cooler because of this, air-conditioning systems will not have to work so hard to cool down the building. This lowers electricity costs.

**2. Low solar heat gain coefficient of glass (SHGC) :** Solar heat gain coefficient is the amount of solar radiation that enters through glass and is released as heat inside a building. The lower the SHGC, the less solar heat it transmits, the cooler the building. This also lowers electricity cost because air-conditioning systems do not have to do all the work.

**3. Enthalpy recovery of exhaust air :** A device called an enthalpy wheel recovers cooled air from the inside and uses the coolness of this "spent" air to cool fresh air from outside. The process also dehumidifies the air from outside. This is a cost-efficient way to improve indoor air quality and lessen energy consumed by air-conditioning systems.

**4. Daylight-controlled lighting systems :** This type of lighting system has sensors that can detect daylight. During the day, the sensor switches off the lights since there is enough light from the sun. When the sun sets, the system will switch the lights on.

This way, the use of artificial lighting during the daytime is reduced. It prevents cases when occupants are too lazy or forget to turn off the lights when they are not needed.

#### Answer 10.

- (a) Mass transit, also called mass transportation or public transportation, the movement of people within urban areas using group travel technologies such as buses and trains. The essential feature of mass transportation is that many people are carried in the same vehicle (e.g., buses) or collection of attached vehicles (trains). Transit provides a community with a way to move potentially large numbers of people while consuming fewer resources. A single bus, if it is full (50 to 80 passengers), can carry as many people as 50 or 60 cars, which normally operate with fewer than 2 occupants. When it comes to our environment, riding public transit makes a big difference.

#### How Mass Public Transit Helps Conserve Energy :

1. A bus with as few as seven passengers is more fuel-efficient than the average single-occupant auto used for commuting.
2. The fuel efficiency of a fully occupied bus is six times greater than that of the average single-occupant auto.
3. The fuel efficiency of a fully-occupied train car is 15 times greater than that of the average commuter's single-occupant auto.
4. In terms of energy consumption per passenger mile (energy used to transport one passenger one mile), transit is more energy efficient.

5. Buses use 8.7% less energy per passenger mile than a typical automobile.

#### How Mass Public Transit Helps Reduce Air Pollution :

1. Public transit moves people efficiently while producing significantly less air pollution to move one passenger one mile as compared to moving a person one mile in a single-occupant auto.
2. Buses emit only 20% as much carbon monoxide per passenger mile as a single-occupant auto.
3. Buses emit only 10% as many hydrocarbons per passenger mile as a single-occupant auto (hydrocarbons are VOCs – an ozone precursor).
4. Buses emit only 75% as many nitrogen oxides (another ozone precursor) per passenger mile as a single-occupant auto.

- (b) Biodiversity can be defined as the wide range of living organisms from all sources which includes terrestrial, aquatic and the ecological complexes. It encompasses living organisms and the associated systems. Whereas, wildlife means the flora and fauna which are found in their natural habitat. The wildlife includes plants, animals, fungi and other organisms which are grown or found in wild area.

#### Benefits of Wildlife :

1. **Benefits to People :** Since prehistoric times, animals have been highly useful to us in providing food, clothing and source of income.
2. **Benefits to Natural Processes :** There are several biological processes wherein wildlife plays a key role, such as pollination, germination, seed dispersal, soil generation, nutrient cycling, predation, habitat maintenance, waste breakdown, and pest control.
3. **Benefits to Science, Agriculture and Medicine :** Studies indicate that woodpeckers are capable of destroying 90% of codling moth larvae residing under the bark of trees. This shows the significance of wildlife and wildlife habitat for preserving genetic diversity.

#### There are many benefits of biodiversity also.

1. **Food and drink :** Biodiversity provides food for humans.
2. **Medicines :** A significant proportion of drugs are derived, directly or indirectly from biological sources.
3. **Industrial materials :** A wide range of industrial materials are derived directly from biological resources. These include building materials, fibers, dyes, resins, gums, adhesives, rubber and oil.
4. Research, education and monitoring.
5. Recreation and tourism.
6. Cultural values.





## QUESTIONS

### SECTION-A (40 Marks)

Attempt **all** questions from this Section.

#### Question 1.

- (a) Mention any two ways to reduce air pollution from domestic sources. [2]
- (b) State two factors responsible for population explosion. [2]
- (c) What is the main objective of Integrated Rural Development ? [2]
- (d) State one advantage and one disadvantage of sewage sludge. [2]
- (e) Distinguish between a core zone and a buffer zone in a tiger reserve. [2]

#### Question 2.

- (a) Mention two advantages of using solar energy in urban areas. [2]
- (b) Expand IUCN. State any one important function of IUCN. [2]
- (c) State the difference between soil erosion and soil conservation. [2]
- (d) What are biodegradable wastes ? How are they useful ? [2]
- (e) State two factors responsible for air pollution from automobiles. [2]

#### Question 3.

- (a) Name any two species of mammals that are still slaughtered for commercial purposes. [2]
- (b) Define global environment health. [2]
- (c) What are energy plantations ? [2]
- (d) State two safety measures required for protection from radiation contamination. [2]
- (e) Mention the importance of primary education in India. [2]

#### Question 4.

- (a) What are the two unfair trade practices of the developed countries ? [2]
- (b) Mention two disadvantages of CNG. [2]
- (c) Define 'Debt Trap'. [2]
- (d) What are the problems associated with construction work in urban areas ? [2]

- (e) Give one advantage and one disadvantage of a catalytic converter. [2]

### SECTION-B (40 Marks)

Attempt **any four** questions from this Section.

#### Question 5.

- (a) What is meant by urbanization ? State the main effects of urbanization on environment. [5]
- (b) Explain three advantages and two disadvantages of using alternative fuels. [5]

#### Question 6.

- (a) Enumerate various strategies adopted to control population. [5]
- (b) What are the reasons for the failure of community forestry projects ? [5]

#### Question 7.

- (a) Explain in detail the human actions that lead to loss of biodiversity. [5]
- (b) Explain how you can plan environment of urban areas? [5]

#### Question 8.

- (a) Suggest some alternate technology to create self-sustaining societies in the developed and developing world. [5]
- (b) Discuss any five ways by which multinational companies cause environmental degradation in developing countries ? [5]

#### Question 9.

- (a) What do you understand by 'Gene Banks' ? Discuss the objectives of maintaining Gene Banks. [5]
- (b) Explain the role of women in the conservation of natural resources. Illustrate your answer with an example. [5]

#### Question 10.

- (a) What is waste ? Explain in detail three methods of waste disposal. [5]
- (b) Discuss the advantages and disadvantages of conservation tillage farming. [5]

## ANSWERS

### SECTION-A

#### Answer 1.

- (a) The two ways to reduce air pollution are :
  1. Creating awareness on personal utilization.

2. Changing to Eco-friendly and energy efficient resources.

- (b) The two factors for Population explosion are :
  1. High Birth rate ratio.
  2. Lack of the awareness on birth control devices.



- (c) The objective of IRDP is to provide suitable income-generating assets through a mix of subsidy and credit to below-poverty-line families with a view to bring them above the poverty line.
- (d) Advantage :
1. It can be recycled to produce organic fertilizers for a better agriculture.
- Disadvantage :
2. It consist of many pathogens and toxic substances which can be only removed from proper filtration process.
- (e) Core zone (critical tiger habitats) is where tigers usually rest, reside, feed and breed. Therefore, Government should prevent any disturbance in such areas, including tourism.
- Buffer zone is an area that lies in the periphery of the core zone. Buffer zones constitute the fringe areas (The outside boundary or surface of something) of tiger reserves up to 10 kms.

**Answer 2.**

- (a) Two advantage of solar energy in urban areas are:
1. It is the renewable source of energy.
  2. Solar energy is environment friendly compared to the burning of fossil fuels.
- (b) International Union for Conservation of Nature is the abbreviation of IUCN. The main objective of IUCN is to influence, encourage and assist societies throughout world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
- (c) Soil erosion is the process by which soil is worn away. Wind, water, heat, cold and gravity or a mixture of all these things can cause erosion.
- Soil conservation is set of management strategies for prevention of soil being eroded from the earth's surface or becoming chemically altered by overuse, salinization, acidification, or other chemical soil contamination.
- (d) Biodegradable wastes includes any organic matter in waste which can be broken down into carbon dioxide, water, methane or simple organic molecules by micro-organisms and other living things using composting, aerobic digestion, anaerobic digestion or similar processes. It is used for composting, an alternate of fuels, and production of heat and electricity.
- (e) Two factors responsible for air pollution from automobiles are :
1. Particulate matter which give smog, pose the most serious threat to human health.
  2. Motor vehicles also emit pollutants that contribute to global climate change and causes global warming.

**Answer 3.**

- (a) Goats for meat and Pigs for pork are two species of mammals that are still slaughtered for commercial purposes.
- (b) Global environmental health may be defined as the research, education, training and research translation directed at health problems that are related to environmental exposures and transcend national boundaries, with a goal of improving health for all people by reducing the environmental exposures that lead to avoidable disease, disabilities and deaths.
- (c) Energy plantation is the growing of selected species of trees and shrubs which are harvestable in a comparably shorter time and are specifically meant for fuel. These plantations helps to provide wood either for cooking in homes or for industrial use, so as to satisfy local energy needs in a decentralized manner.
- (d) The two safety measures to protect from radiation contamination are :
1. Protective clothing and gloves shall be worn when handling radioactive material under conditions where contamination may be expected.
  2. Radioactive material work areas should be non-porous or covered with backed absorbent paper.
- (e) **Importance of Primary Education in India :**  
Right to Primary Education (also elementary education) is a fundamental right in India. It is the duty of the Government to provide free-education to every boy and every girl up to the primary stage. Education is the key to building a society that can overcome poverty in a sustainable manner.

**Answer 4.**

- (a) **Unfair trade practices by Developed countries are :**
1. In developed countries practice subsidizing game on their agriculture at a rate of \$1 billion a day, which is a whole lot of money while developing countries spend very little money for agriculture even if it is their main economic sector.
  2. The unfair competition forces international prices to drop in an artificial manner and causes rural farmers in developing countries to collapse.
- (b) **Disadvantage of CNG are :**
1. CNG takes up more space in the engine cylinder which reduces the amount of air in the engine and results in reduced power.
  2. CNG is non-renewable source of energy hence likely to be exhausted at some point of time.
- (c) Debt Trap is a situation where you add on new debt in order to pay an existing debt. Generally

when the firm or an individual is over leveraged all the credit sources are exhausted, the firm or individual arrives at a situation of debt trap.

**(d) Problems of construction in urban areas are :**

1. Loss of Public space.
2. Environmental impacts and energy consumption.

**(e) Advantage of Catalytic converter :** It is free from emissions such as carbon dioxide, carbon monoxide and hydrocarbons.

**Disadvantage of Catalytic converter :** It is costlier to install and replace.

## SECTION-B

### Answer 5.

**(a)** Urbanization is the process by which large numbers of people become permanently concentrated in relatively small areas, forming cities. Internal rural to urban migration means that people move from rural areas to urban areas.

**1. Complexity of environmental problems:** Probably most of the major environmental problems of the next century will result from the continuation and sharpening of existing problems that currently do not receive enough political attention.

**2. Overpopulation :** The major cause of most environmental problems is the rapidly growing human population. About 90 million babies are born each year.

**3. Growing demand for food and facilities :** Due to the growing population, demands for water, food, housing, heat, energy, clothing, and consume goods are increasing alarmingly.

**4. Pollutants to air, soil and water :** Even the industrialized countries, with higher standards of living and greater numbers of cars, produce far more air pollution and greenhouse gases than developing countries, they can reduce environmental hazards by using technology such as smokestack scrubbers, emission systems, and wastewater treatment plants.

**5. Noise :** In the urban environment there are many sources of noise. The most serious sources are aircrafts, industrial operations, highway traffic and construction activities. Current noise levels harm hundreds of millions people and create serious health threats to million people in the world.

**(b) Advantages of Alternate fuels are :**

**1. Environmental benefits :** Low or zero carbon emission is without a doubt the main advantage of alternative energy over fossil fuels.

**2. Increased energy security :** Fossil fuels are unequally distributed and make the global economy dependent on a few exporting countries.

**3. Sustainability :** Unlike the traditional types of energy which are non-renewable, alternative forms of energy are renewable which means that they offer sustainable and stable energy supply in the long term.

**Disadvantages :**

**1. High cost :** Unfortunately, the technologies that utilise alternative sources of energy remain relatively expensive.

**2. Low efficiency :** Alternative energy technologies are relatively new in offices and are not particularly efficient. This poses a problem with feasibility because the investment may not return, even in the long term.

### Answer 6.

**(a) Measures to control population are :**

**1. Delayed marriages :** As per Indian law the age of marriage for a men is 21 and a women is 18.

**2. Increasing medical facilities for urban and rural areas.**

**3. Creating awareness programs for Family planning measures.**

**4. Women empowerment by educating them against discrimination.**

**5. Eradicating poverty which is the direct relationship with population.**

**6. Late marriages can also favour in control of population.**

**7. Providing incentives for parents using family planning options.**

**(b) Reasons for the failure of community forestry projects are :**

**1. Community Woodlots :** Development of fuel wood plantations on community wastelands was a major programme to generate employment for the local poor and the landless, while augmenting the fuel and forage shortfall faced by the community.

**2. Strip Plantations :** Saplings of tall growing tree species were established in multiple lines along the railway tracks, canal bunds and roadsides and the landless families were involved in protecting them.

**3. Farm Forestry :** It was the most successful scheme wherein farmers established plantations of eucalyptus, casuarinas, poplar, teak, etc., on their agricultural lands using necessary inputs like irrigation and fertilizers with the hope of finding a suitable market and attractive price for the produce.

**4. Decentralized nurseries :** The primary objective was to build up the local capacity for assured supply of planting materials of popular tree species.

**5. Energy Conservation :** Several energy conservation measures like promotion of improved wood stoves and biogas plants did not achieve the expected results due to poor publicity and awareness.

**Answer 7.**

**(a) Human actions that lead to loss of biodiversity are :**

**1. Alteration and loss of the habitats :** The transformation of the natural areas determines not only the loss of the vegetable species, but also a decrease in the animal species associated to them.

**2. Introduction of exotic species and genetically modified organisms :** Species originating from a particular area, introduced into new natural environments can lead to different forms of imbalance in the ecological equilibrium.

**3. Pollution :** Human activity influences the natural environment producing negative, direct or indirect, effects that alter the flow of energy, the chemical and physical constitution of the environment and abundance of the species.

**4. Climate change :** For example, heating of the Earth's surface affects biodiversity because it endangers all the species that are adapted to the cold due to the latitude (the Polar species) or the altitude (mountain species).

**5. Overexploitation of resources :** When the activities connected with capturing and harvesting (hunting, fishing, farming) a renewable natural resource in a particular area.

**(b) Planning Environment in Urban areas :**

**1.** The most effective strategies for integrating the environment in urban planning and development involve incorporating the environment in existing tools, rather than developing stand-alone approaches.

**2.** Integrating environmental concerns in investment decisions can contribute substantially to the greening of the building sector and other infrastructure.

**3.** Considering the underlying nature of urban planning and governance is central to effective integration of the environment in urban planning and management.

**4.** Good urban design can help to generate environmental, social and economic benefits for cities and their residents.

**5.** Acquiring finance for infrastructure remains a significant challenge for many cities, but if environmentally sound investments can be encouraged these can produce significant benefits.

**6.** Greater participation and interaction between environment and development stakeholders.

**7.** Integrated environment development policy and associated political leadership.

**8.** Increased municipal, national and international investment in environmental priorities.

**9.** Strengthened institutions and capacities to mainstream environment.

**10.** Sustained behavioural change by individuals, institutions and society.

**11.** Development impacts, demonstrated through improved productivity and sustainability of use of environmental assets, and better management of risk from environmental hazards.

**Answer 8.**

**(a)** The idea of human development is supported by the concepts of equity, sustainability, productivity and empowerment.

**1.** Equity refers to making equal access to opportunities available to everybody. The opportunities available to people must be equal irrespective of their gender, race, income and in the Indian case, caste.

**2.** Sustainability means continuity in the availability of opportunities.

**3.** Productivity here means human labour productivity or productivity in terms of human work. Such productivity must be constantly enriched by building capabilities in people.

**4.** Empowerment means to have the power to make choices. Such power comes from increasing freedom and capability.

**5.** Whereas self-sustainability is a quality of one's independence, survivability applies to the future maintainability of one's self-sustainability and indeed one's existence.

**6.** Self sustainability is closely related to living off the grid.

**7.** This meant that the bigger the economy of the country, the more developed it was considered, even though this growth did not really mean much change in the lives of most people.

**8.** The idea that the quality of life people enjoy in a country, the opportunities they have and freedoms they enjoy, are important aspects of development, and is not new. These ideas were clearly spelt out for the first time in the late eighties and early nineties.



**(b) Impacts caused by Multi National Companies (MNC) to the environment are :**

- 1. Loss of Natural Resources :** MNCs use natural resources of the home country in order to make huge profit which results in the depletion of the resources thus causing a loss of natural resources for the economy.
- 2. Land Grabbing by MNC :** The global need of land and its resources like water, plants, timber or minerals is continually increasing. This leads governments and private investors to look for cheap resource-rich land close to infrastructure. The land is often taken from farmers who are the traditional users.
- 3. Globalization :** It is taking over and is the opinion of many that multi-national corporations are gaining more power in areas of politics and economy while damaging the environment in the process.
- 4. Adverse Impacts :** It is also arguable that the cooperation of many state governments, in a combined effort with MNCs in many countries is having an adverse effect on the environment. Industrial effluents produced by MNC's cause a greater impact to environmental degradation.

**Answer 9.**

- (a)** Gene banks are a type of biorepository which preserve genetic material. For plants, this could be by freezing cuttings from the plant, or stocking the seeds (e.g. in a seedbank). For animals, this is the freezing of sperm and eggs in zoological freezers until further need.

**Objectives of maintaining Gene banks :**

1. To maintain rural community.
2. To recreate lost breeds or breeding lines.
3. As backup in case genetic problems would occur.
4. To allow development of new lines or breeds.
5. Support in situ conservation.
6. To collect, preserve and assess animal genetic resources.
7. Primary function is the conservation of genetic resources in the near, medium and long term.
8. Gene bank collections can be multifaceted in function and objectives.
9. Developing multiple functions increases the opportunity for potential returns.
10. Gene bank development is a long term prospect in terms of development and use and is used for research as well.

**(b) Role of Women in Conservation of natural resources :**

1. Women manage natural resources daily in their roles as farmers and household providers. Typically, they are responsible for growing subsistence crops, and often have unique knowledge of local crop species.
2. To meet family needs, rural women and girls walk long distances to collect fuel wood and water. Despite their reliance on natural resources, women have less access to and control over them than men.
3. Usually it is men who put land, water, plants and animals to commercial use, which is often more valued than women's domestic uses.
4. Women farmers have limited access to irrigation networks or, when they do, to irrigation management decisions membership of water users' associations is often linked to land ownership.
5. Women's limited water entitlements force them to use subsistence agricultural practices that may lead to soil erosion, a major source of instability in watersheds.

**Examples:**

1. Water for cooking, washing and cleaning
2. Land for agriculture
3. Wood for heating and cooking
4. Plants and animals for food and sale.

**Answer 10.**

- (a)** Waste is of a material, substance, or by-product which is eliminated or discarded as no longer useful or required after the completion of a process.

Waste management is the collection, transport, processing, recycling or disposal, and monitoring of waste materials. Waste management can involve solid, liquid, gaseous or radioactive substances, with different methods and fields of expertise for each.

**Methods of waste disposal:**

**Composting :** Composting is a easy bio-degradation process that takes organic wastes i.e., remains of plants, garden, kitchen waste and turns into nutrient rich food for the plants. Composting, normally used for organic farming, occurs by allowing organic materials to sit in one place for months until microbes decompose it.

**Landfill Disposing :** Landfill Disposing of waste in a landfill involves burying the waste, and this remains a common practice in most countries. Landfills were often established in abandoned or unused quarries, mining voids or borrow pits.



A properly-designed and well-managed landfill can be a hygienic and relatively inexpensive method of disposing of waste materials. A landfill compaction vehicle in action. Many landfills also have landfill gas extraction systems installed to extract the landfill gas. Gas is pumped out of the landfill using perforated pipes and flared off or burnt in a gas engine to generate electricity.

**Incineration :** Incineration is a disposal method that involves combustion of waste material. Incineration and other high temperature waste treatment systems are sometimes described as “thermal treatment” Incinerators convert waste materials into heat, gas, steam, and ash. Incineration is carried out both on a small scale by individuals and on a large scale by industry. It is used to dispose of solid, liquid and gaseous waste. It is recognized as a practical method of disposing of certain hazardous waste materials (such as biological medical waste). Incineration is a controversial method of waste disposal, due to issues such as emission of gaseous pollutants.

**(b) Advantages of conservation tillage farming :**

1. Conserves water. The mulch reduces water to evaporate.
2. Reduces erosion because the topsoil is protected.
3. Reduces soil compaction.
4. Protects impact from rain and wind.
5. Improves the soil condition with the increased organic matter content.
6. Natural enemies have places to stay.
7. Lessens the overall production cost.

**Disadvantages :**

1. Needs a thorough understanding of the concept and requires careful farm management practices to be successful.
2. Most soil pests populations are increased.
3. Weeds compete with the main crops.
4. High tendency of a carryover of the insect pests and diseases from the crop residues.
5. Organic matters are not evenly distributed or are concentrated at the topsoil.
6. It needs patience and waits a longer time to have an excellent soil.

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